



Title : Moving experience: an investigation of embodied knowledge and technology for reading flow in improvisation

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**MOVING EXPERIENCE: AN INVESTIGATION OF
EMBODIED KNOWLEDGE AND TECHNOLOGY
FOR READING FLOW IN IMPROVISATION**

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UNIVERSITY OF BEDFORDSHIRE

**MOVING EXPERIENCE: AN INVESTIGATION OF EMBODIED
KNOWLEDGE AND TECHNOLOGY FOR READING FLOW IN
IMPROVISATION**

by

Louise Emma Douse

A thesis submitted to the University of Bedfordshire in partial
fulfilment of the requirements for the degree of Doctor of
Philosophy

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Abstract

The thesis is concerned with the exploration of the notion of ‘flow’ from both a psychological and dance analysis perspective in order to extend the meaning of flow and move beyond a partiality of understanding. The main aim of the thesis recognises the need to understand, identify and interpret an analysis of the moments of flow perceivable in a dancer’s body during improvisatory practice, through technologically innovative means. The research is undertaken via both philosophical and practical enquiry. It addresses phenomenology in order to resolve the mind/body debate and is applied to research in flow in psychology by Mihalyi Csikszentmihalyi, and flow in movement analysis by Rudolf Laban and Warren Lamb. The significance of this endeavour can be seen in the reconsideration of the relation between mind and body, and art and science which informs the methodology for the research (Part One). The three main outcomes of the research are related to each of the three subsequent parts.

The first research outcome is the articulation of a transdisciplinary approach to understanding flow and was developed by expanding on the current definitions of flow through an innovative transdisciplinary methodology (Part Two). Research outcome two addresses the intersubjective nature of flow, which was identified within improvisation. From this two methods were constructed for the collection and interpretation of the experience of the dancer. Firstly, through reflective practice as defined by Donald Schön. And secondly, an argument was provided for the use of motion capture as an embodied tool which extends the dancers embodied cognitive capabilities in the moment of improvisation (Part Three). The final research outcome was thus theorised that such embodied empathic intersubjectivity does not require a direct identification of the other’s body but could be achieved through technologically mediated objects in the world (Part Four).

Subsequently, the findings from the research could support further research within a number of fields including dance education, dance practice and dance therapy, psychology, neuroscience, gaming and interactive arts.

Declaration

I declare that this thesis is my own unaided work. It is being submitted for the degree of Doctor of Philosophy at the University of Bedfordshire.

It has not been submitted before for any degree or examination in any other University.

Name of candidate: Louise Douse

Signature:

Date: 5 November 2013.

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PART ONE: INTRODUCING FLOW

Introduction

Over the past two decades, research in the area of contemporary European performance has focused on a resurgence of interest in embodied practice through technological innovation. Many practitioners and theorists explore the convergence of technology and embodied practice, investigating the effect technology has on the body. Much research documents the various practices which experiment with technology in performance, and a pervasive quest for interrogating the relationship between body and technology is central to much of this work. This particular area of research, as a result, calls into question a set of oppositional structures including art/science and mind/body, and thus necessitates a reconsideration of those structures. Such practices and theoretical investigations can be considered to depart from dualist narratives around art and science and the mind and body, with creative practices increasingly imbued with technological artefacts and methods. From this perspective, the world is viewed as being negotiated by a technologically mediated body.

However, it is argued in this thesis that this particular conceptualization of world, technology and body is only one way of interrogating the art/science, mind/body divide. A conceptualization which is largely missing from digital performance literature is that of the body negotiated by a technologically mediated world. This is, for example, a method prevalent in many of the sciences, including dance science, where technologies are used to translate the body for research, such as the x-ray machine or the

fMRI machine which isolate measurable phenomenon of the body in order that an understanding of the body be made available. What is encapsulated in this formulation is how the objectively defined body is interrogated and interpreted through a technological medium.

The lack of articulation of this view within the creative arts is significant as it further enforces the art/science divide by privileging certain methods over others within both art and science. While the arts privilege the subjective and unknowable, the sciences typically privilege the objective and knowable. Therefore, this thesis proposes a third formulation in which a subjective embodied being is interrogated and interpreted through a technological medium; in this way, motion capture technologies will be used to translate embodied subjective responses for the purposes of human understanding.

In order to address the broad problem outlined in this introduction, a response is articulated within the thesis which offers a specific example to develop an understanding of the uses of the scientific hermeneutic method with regards to technology in interpreting subjective phenomena within creative research. The study proposes to address the experience of 'flow' in contemporary dance improvisation in relation to both psychology and dance analysis. The main aims of this PhD study, therefore, are to understand, identify and interpret an analysis of the 'moments of flow' perceivable in a dancer's body during improvisatory practice, through innovative technological means.

Part One: Introducing Flow, in which this introduction is situated, provides the broader context of the problem central to this study. In order to demonstrate how this particular study can be used as an entry point to the broader art/science discussion three principle objectives have been formulated:

1. To understand and critique the development of the debate surrounding flow by examining recent writing within philosophy, dance and performance studies, and psychology.

This thesis discusses the key concepts, issues and history of thought within writing about flow, as it has developed since the early twentieth Century, particularly within flow studies, in positive psychology and movement analysis in dance. Both areas address flow in terms of the holistic experience that people engage in through action in the world. Flow in psychology addresses the state of mind an individual enters when totally immersed in an activity; the purpose of positive psychology is to achieve a scientific understanding and implement effective interventions for improving life. Flow in movement analysis is the motional quality of an individual's movement, however, this is considered to involve the whole being; mind and body. The second part of the thesis takes a phenomenological approach to understanding and elucidating the structures of flow. Phenomenology is concerned with conscious experience through perception; the main notion of this philosophy is to define a qualitative approach to the lived experience. Part Two: Finding Flow provides a comprehensive overview of the debate concerning flow in performance, which is explored in order to develop a synthesis of new and complex information which will map out the parameters for this present study.

2. To identify particular moments of flow in dancing embodied experience through the use of reflection within dialogic processes between researcher-practitioner and participant-dancer in improvisation.

This objective demonstrates further development of the methods and techniques linked to flow. Part Three: Capturing Flow details the proposed methods and tools appropriate for identifying experiences of flow in dance. Here the study addresses knowledge as produced through the intersubjective reflections on experiences of both the participant-dancer and researcher-practitioner. The study will identify whether flow can be recognized within improvisation in contemporary dance through the reciprocal reflexive processes inherent in choreographic practice. The research utilises both first person and third person perspectives; the first

person approach sees the researcher as creative practitioner. Within the improvisatory process, it is not essential for the practitioner and dancer to be involved in reflective practice, however, the use of the researcher as practitioner enables the intersubjective relationship between practitioner and dancer to be further examined.

3. To interpret an analysis of flow using motion capture technologies, and assess the impacts, limitations and implications of the use of such technologies for analysing the improvisatory process.

Part Four: Reading Flow draws on innovative approaches to technology in the application of motion capture as a tool for analysis of flow within the body. Due to the emerging nature of this area of research, the current technologies used for movement analysis come from biomechanics together with recent further developments within computer animation for gaming and film purposes. This study also proposes that the development of such an innovative methodology for the use of motion capture will provide the means by which findings concerning analysing flow will be evidenced. The research thus endeavours to develop an understanding of the best uses of the technologies for the acquisition and collation of information.

This thesis develops a transdisciplinary approach to flow. While the terms multidisciplinary, interdisciplinary and transdisciplinary are often used interchangeably, it is important to note the conceptual distinctions between them. Multidisciplinary refers to research from more than one field which is considered in parallel or sequentially, but remain distinct within their field, for example, a dance work by Pina Bausch can be studied not only within dance history but also within European history and through a phenomenological approach. Interdisciplinary research is that which concerns the transfer of knowledge from one discipline to another, for example, when the methods of theatre practice are transferred to dance practice it leads to the appearance of a new practice, that of Dance Theatre, or Tanztheater within the context of Bausch's work.

Transdisciplinary research however, “concerns that which is at once between the disciplines, across the different disciplines, and beyond all discipline.” (Nicolescu, 1999, p. 2).

In the context of this study, the concept of flow can be considered an umbrella term under which multiple disciplines and methodologies are drawn on in order to develop a new “understanding of the present world, which cannot be accomplished in the framework of disciplinary research.” (Ibid, p. 3). Flow as defined in positive psychology and flow as defined in movement analysis “nourishes” the transdisciplinary research, and in turn “is clarified by transdisciplinary knowledge.” (Ibid, p. 3). In this type of research neither discipline nor method is privileged. The first person, subjective understanding of flow is approached through phenomenological methodology, and is utilised in conjunction with the third person, objective understanding of flow from the material data gathered from the motion capture technologies. The transdisciplinary approach to this study encourages and recognises the value of bringing together multiple research paradigms and thus aims to combine methods and techniques in a flexible and rigorous manner designed specifically for the study.

Chapter One: Contextualising Flow opens by addressing the role of René Descartes at the start of the modern era, in polarising the fields of science and art. It looks at the shifting perspectives manifest in philosophy and dance at the start of the modern age and, in particular, addresses the work of Maurice Merleau-Ponty and Rudolf Laban in relation to one another and their broader modernist frameworks. The aim is to address how these two areas of research can be aligned with current thinking. The section also addresses the technological implications of the postmodern era, identifying key thinkers Jean-Francois Lyotard and Jacques Derrida in relation to digital performance theory, before returning to the art/science debate. The chapter closes by drawing on current methodological practices within the field of practice-as-research in order to identify the key methodological concerns of this thesis.

Chapter Two Understanding Flow provides a review of the relevant literature within Part Two. It must be emphasised that the context of this thesis is Western contemporary theory and practice, though this does not necessarily exclude Eastern philosophies or practices as indeed many Eastern practices are drawn on within much contemporary Western research. For example, Buddhist notions of mindfulness, and Eastern practices such as yoga are integrated in many Western philosophies and dance practices, respectively. It is essential, however, to place some limitations on the thesis and to define clearly the parameters of the research, but it should be noted that the literature presented in this chapter should by no means be considered exhaustive. A certain amount of selectivity was essential as it would have been difficult, within this one chapter, to review all literature which explicitly or implicitly considers embodiment.

Chapter Three: Phenomenological Flow begins with an analysis of the psychological study of flow by Mihalyi Csikszentmihalyi. Flow as defined by Csikszentmihalyi is an optimal state of intrinsic motivation. The chapter draws on parallels between phenomenological notions of embodiment and the psychological concept of flow. It briefly reviews some dualist understandings of the body's role in self-identity before going on to explore some of the limitations associated with this view, and how these problems can be overcome through a shift to the notion of embodiment. Merleau-Ponty is largely discussed here in terms of his theory of the body as a means of being in the world. Merleau-Ponty's habit body and Heidegger's Dasein and notions of temporality are drawn upon in order to articulate an individual's experience of flow.

Further parallels are then drawn between Csikszentmihalyi's and Rudolf Laban's notions of flow within Chapter Four: Flow in the Dancing Body. Laban's work in the area of flow sits within his studies of choreutics and eukinetics; two areas of dance research which address effort and shape in the dancing body. Both Csikszentmihalyi and Laban view flow as revealing

cognitive processes, however neither include reference to the other and indeed both define flow quite differently. Flow for Laban is the physical characteristic which is indicative of an individual's ability to communicate and create relationships. Moving between free flow and bound flow, Laban articulates a preference for free flow as that which moves with freedom, ease and fluency. Drawing on Laban's research, the work of Warren Lamb is also defined within the chapter in order to develop further links with Csikszentmihalyi's notion of flow.

The following chapter, Chapter Five Facilitating Flow, addresses dance practices which also explore the interrelationship between flow in psychology and flow in terms of movement quality. It draws on improvisational practices as well as image work and Eastern practices such as yoga and butoh. The purpose of this chapter is to identify those embodied practices which facilitate flow in order to develop a methodology for devising a workshop on flow. This workshop sets up the second objective to be explored in Part Three of this thesis which addresses the identification of flow in improvisation. In order to identify flow in improvisation, both the researcher and the participants must have an understanding of flow as developed throughout these chapters and be able to identify with the particular practices which enhance flow.

Chapter Six Identifying Flow, the first chapter in Part Three provides the overall methodology that will be applied within this thesis for engaging with the dancer's experience of flow. It draws on a theory of intersubjectivity, discussed with reference to Merleau-Ponty and his work *The visible and the invisible* (1964). This is then clarified with respect to the term kinaesthetic empathy, considered as an individual's embodied engagement with others in the world, and is examined both within a dance context and a neurobiological context. Finally, the neurobiological research on empathy helps to support a theory of empathy for technologically mediated 'others'.

Chapter Seven: Dialogic Flow begins with an analysis of hermeneutic phenomenology as a methodology for interpreting the experience of the other. The chapter then addresses the theory of reflective practice as a method for the dialogic processes apparent in the researcher-practitioner and participant-dancer relationship. The chapter provides a rationale for the methods used in the thesis drawing on key theorists such as Donald Schön and his notions of reflection in and on action. It develops an understanding of the relevance and applicability of reflective practice to phenomenology and flow, considering both their interrelationship and limits. The chapter articulates the methods utilised for collecting the subjective data including the use of journals, continuous writing exercises, and interviews.

Digital performance is the theme of the next section: Chapter Eight: Technologically Embodied Flow. It provides a brief introduction to the practitioners and theorists within this field and explores the various types of performance and technologies including, visualization technology, avatar performance, telematics, and archival or e-science technologies. Chapter Eight addresses theories of embodiment in relation to technology, such as the Philosopher of technology, Don Ihde's embodied technics which explores human/technology relations and considers the technology as transparent mediator of the world. The chapter also facilitates an understanding of embodied technologies from within the arts, such as those of digital artist Susan Kozel. It will explore whether the use and the extent of the motion capture system in the study can be considered embodied, reflecting on studies in neuroscience which suggest empathic responses to human initiated technological visualizations.

Chapter Nine: Interpreting Flow looks at a hermeneutics of technology as a method for interpreting data. This chapter addresses the theory of hermeneutic technics, an extension of Don Ihde's theories regarding human/technology relations, in which the technology is the immediate object of perception, and referent of the world. It also discusses other

theories addressing science's visualism and the field of information visualization, with reference to artistic visualization in order to define the particular usage of visualization within this research. Here, methods are addressed for creating the visualization, drawing on Laban's research, and the way in which it is being used in this study.

The next chapter, Chapter Ten: Clarifying Flow, draws together the various stages of the practical research in order to identify the particular methods used at each phase. It addresses the methods by which problems were resolved or how results were clarified. Due to the innovative use of the motion capture technologies, for example, methods for reading flow needed to be constructed or elucidated from the researcher's implicit knowledge. This chapter provides a rationale for the decisions made and evidences the innovative uses of the technologies.

Finally, Chapter Eleven: Reflecting on Flow, articulates the results of the research, drawing on both the subjective dialogic data from the journals and interviews, as well as the objective data from the motion capture technology. The chapter will draw on hermeneutic phenomenology in addressing the cyclical process of understanding the data and the phenomenon of flow. Key implications and recommendations from the research findings are then outlined in the Conclusion.

Chapter One: Contextualizing Flow

This study sits in the area of practice-as-research within the context of higher education. Practice-as-research within the academy is a very recent development; in 1991 the Council for National Academic Awards in the UK outlined the regulations for higher degrees, stating that “[t]he written thesis may be supplemented by material in other than written form” (cited in Candy, 2006 p. 4). In 2005, a five year project titled Practice as Research in Performance (PARIP) was funded by the, then, Arts and Humanities Research Board (ARHB), (now, the Arts and Humanities Research Council (AHRC)), in order to “investigate creative-academic issues raised by practice as research, where performance is defined, in keeping with AHRB and RAE documentation, as performance media: theatre, dance, film, video and television.” (PARIP Website). A key objective of this project was to highlight the worthiness of performance practice within the academic domain, and establish new knowledge paradigms.

Cited as being in one of the first cohorts of doctoral students in performance, Professor Sarah Rubidge, a digital choreographer and academic, received her doctorate in 2000 and defined two further categories of research in her keynote paper in 2005 at the conference *Dance rebooted: initializing the grid*. Rubidge defines these two areas as practice-based and practice-led research. Practice-based research leads

primarily to new understandings about the field of performance practice where,

[in] projects such as these the research question/s tend to be clearly stated at the start of the project. Here practice is used as one mode of interrogating that question, and may play either a supporting or a dominant role in the research methodology.
(2005, p. 5)

Practice-led research, on the other hand sees the creative artefact as the basis of the contribution to knowledge; “in which the research is initiated by an artistic hunch, intuition, or question, or an artistic or technical concern generated by the researcher’s own practice which it has become important to pursue in order to continue that practice.” (Ibid, p. 6).

This study is practice-based: the main aim of the research is to advance knowledge within the creative process and therefore it does not require the use of creative artefacts or works for assessment, although, supplementary footage is documented in the attached DVD. Though the form of submission may be aligned with traditional academic practice, the process of knowledge acquisition can be seen to challenge the academy. In particular, the study aims to challenge dominant art/science dualism, a result of modernist thinking.

For the purpose of this chapter Merleau-Ponty, Heidegger, and Laban will be the key theorists addressed, alongside Jacques Derrida and Jean-Francois Lyotard, in order to contextualise the intersections in terms of existing academic ideas and literature, and to discuss the methods and methodological approaches which underpin this thesis. In each instance, the theorists tend to overcome dualist opposition within their writing, across a range of academic disciplines. Within philosophy, Merleau-Ponty and Heidegger explore dualisms such as mind/body and visible/invisible and within dance, Laban describes movement in terms of bound/free, growing/shrinking and challenges modernist dualisms of theory/practice and art/science within his work. Derrida and Lyotard, however, explore linguistic oppositions and notions of real/illusory and absence/presence.

In each context the theorists are grappling with modernist concerns. The purpose of reviewing the relevant literature in this chapter is to highlight the modernist dualisms brought to attention through their works and examine the commonalities in their writing regarding the re-integration of such binary opposition. Furthermore, the chapter aims to look at the relationships between the larger areas of research – philosophy, psychology, dance, science and technology – as each of these hold their own tensions toward one another.

1.1 Binary opposition

The Age of Enlightenment which began in the late seventeenth and eighteenth century is argued as the start of modernity:

From the latter part of the seventeenth century, many of Europe's greatest minds came to the conclusion that to understand the true history and destiny of the human race, neither unquestioning faith in the Bible, nor automatic reliance on the authority of the Greek and Roman thinkers (the 'Ancients') would any longer suffice. Man's nature was not properly known; it must become the subject of inquiry. And the proper engine of such an investigation must be that 'scientific method' which natural scientists (the 'Moderns') had pioneered so successfully in the fields of astronomy, physics and anatomy.
(Porter, 2001, p. 15)

This period was characterized by the decline of traditional social order and a religious world-view typical of traditional societies, and the rise of secular and materialistic culture characterized by new class formation and secular forms of political power and authority. Modernity is considered to be contrived from the revolt against tradition and faith with emphasis on reason and scientific thought.

French philosopher, René Descartes, (1596-1650) is widely held as foundational to the Enlightenment. Descartes declared that he was introducing a new way of thinking about nature and the human mind, a way which required the abandonment of inherited and common sense convictions and the deployment of a new method of directing his readers towards a study of "a certain Method for the resolution of difficulties of

every kind in the Sciences” (Descartes 1641, p. 36). This would cover a general physics, human physiology, and a study of emotions and moral psychology. In 1641 he published his *Meditations* which was meant as a primer for his new principles. These principles contained his method of doubt, as Hatfield notes:

Descartes uses sceptical arguments to call his previous knowledge into doubt. He does this with the aim of ridding himself (and his reader or co-meditator) of previous, often false, beliefs, so as to begin afresh.

(2001, pp. 7-8)

Descartes rejected any belief that is subject to doubt in order to question the sources of that belief. He began by doubting the senses, noting that “it is sometimes proved to me that the senses are deceptive, and it is wiser not to trust entirely to any thing by which we have once been deceived.” (Descartes, 1641, p. 46). By pursuing this, he argued that an individual’s sensory experience of the world could never be trusted; just as an individual could experience things which were not there in dreams, perhaps they could experience things which were not there in everyday perception. Descartes therefore rejected the idea that sensory data could have a foundation for knowledge and questioned how it was an individual could ‘know’ they exist. He concluded that the fact that an individual *can* doubt their existence proves that they exist; “this proposition: I am, I exist, is necessarily true each time that I pronounce it, or that I mentally conceive it” (Ibid, p. 51).

The outcome of Cartesianism is to set up, on the one hand, a totally objective nature which is fully intelligible in itself – since it is but matter in motion whose laws are capable of being discovered by the objective sciences of nature – and, on the other hand, conscious subjects who are nothing but pure interiorities and who, because they are but gazes [*regards*] on nature existing nowhere *in* this nature which is fully intelligible in itself, cannot be intelligible for themselves of the objects of any objective science.

(Madison, 1988, p. 58)

Descartes breaks with the past in his radical approach to the problem of knowledge, however, his philosophy is characterised by a dualism of mind and body.

The thinkers of the Enlightenment drew on Descartes' method of doubt and scepticism, however, they also looked back toward the philosophers of Ancient Greece; "the Enlightenment discerned the old powers in the Platonic and Aristotelian heritage of metaphysics and suppressed the universal categories' claims to truth as superstition." (Horkheimer and Adorno, 2002, p. 3). Since Plato, Western philosophy has embarked on a search for a fundamental truth or 'logos'. Logocentrism postulates binary oppositions. The concept of binary opposition is one of the oldest surviving theories propounded by philosophers. Around 500BC Greek philosopher Pythagoras developed a list of ten principles also known as the table of opposites as presented by Aristotle in his work *Metaphysics*:

limit	unlimited
odd	even
one	plurality
right	left
male	female
at rest	moving
straight	crooked
light	darkness
good	bad
square	oblong

(Guthrie, 1962, p. 245)

In each case, the first term is perceived to be closer to the logos, and privileged over its counterpoint. Not only are the terms set against one another in opposition but also within a hierarchical relationship. Unity is thus privileged over plurality; "[f]or the Enlightenment, anything which cannot be resolved into numbers, and ultimately into one, is illusion; modern positivism consigns it to poetry. Unity remains the watchword from Parmenides to Russell." (Horkheimer and Adorno, 2002, p. 5).

Within art, during the Age of Enlightenment, and into the nineteenth century a return to the classicist ideals of Greece was also evident. In the Greek period, classicist paintings and architecture developed with

symmetry being predominant, reflecting the philosophical values of unity. Around the seventeenth and eighteenth centuries, classicist literature and music was developed by writers such as Wordsworth, Shelley and Coleridge and composers such as Beethoven, Mozart, and Bach. Within dance and drama, classicist ideals became prominent around the nineteenth century, with notable choreographers such as Marius Petipa (1818-1910) who developed classical ballet which reflected ideals of order, balance and symmetry.

A key cultural critic of this period is Matthew Arnold (1822-1888) who, in his work *Culture and anarchy* (1869), described culture as “the best that has been thought and said in the world” (p. 6), which is to be attained by “the disinterested and active use of reading, reflection, and observation, in the endeavour to know the best that can be known.” (Ibid, p. 179). This thinking reflected classicist concerns with the study of Ancient Greece as an example of the best in the world, but also reflected the privileging of one set of values over another as in the binary oppositions set out by the Ancient Greeks. For Arnold:

The highly instructed few, and not the scantily instructed many, will ever be the organ to the human race of knowledge and truth. Knowledge and truth in the full sense of the words, are not attainable by the great mass of the human race at all.
(1863, p. 43-44).

Binary opposition in classicist culture denoted a hierarchical structuring of culture over nature, man over woman, rational over emotional, conscious over unconscious, and form over expression, amongst others.

Modernism, as opposed to modernity, is used to describe certain trends in art, writing, criticism and philosophy within the nineteenth and twentieth centuries following the classical resurgence. It is a complex movement which cannot be easily defined; there are disputes relating to when the movement started and whether it has ended, and thus can be considered both an ahistorical concept and a time bound, aesthetic technological concept. Although generally it is considered that the period lasted from 1890 - 1930 (between wars):

Modernism can be taken as a response by artists and writers to several things, including industrialisation, urban society, war, technological change and new philosophical ideas. Because the nineteenth century experiences a spreading disillusionment with existing models of the individual and the social, the Western world was transformed and reinterpreted by Marx, Freud and Darwin, who respectively changed established notions of the social, the individual and the natural.

(Childs, 2008 p. 21)

Modernism can be thought of as maintaining an attitude toward modernity; a number of arguments and interventions made against modernity can be said to constitute an attitude referred to as modernism. Modernism consists of numerous artistic practices: symbolism, constructivism, expressionism and surrealism, to name a few. While these practices are often quite disparate and incompatible with one another, a common unity may be found in the idea that all of them respond to a shared set of social and ideological conditions. Modernism was a revolt against the traditions upheld in classicist thought and a response to the “increasingly dehumanising technological environment.” (Burgin, 1986, p. 30).

Art critic, Victor Burgin, in his book *The end of art theory: criticism and postmodernity* (1986), defines a split in modern art from a formalistic, high modern, avant-garde to the rather dismissively termed ‘kitsch’. In high modernism “the function of art is to preserve and enhance its own special sphere of civilising human values.” (Ibid 1986, p. 30). Whereas ‘kitsch’ practices were seen as lower arts, as eschewed by critic Clement Greenberg:

the new urban masses set up a pressure on society to provide them with a kind of culture fit for their own consumption... a new commodity was devised: ersatz culture, kitsch, destined for those... insensible to the values of genuine culture.

(cited in Burgin, 1986, p. 2)

In an attempt to break free from its traditional thinking, modernism disrupts the classicist binary oppositions by attempting to unify them while maintaining the hierarchical preference in each instance.

1.2 Mind / body

Within European dance, choreographers were concerned with expression over form and nature over culture. Rudolf Laban (1879-1958) is a notable figure in European dance modernism and movement analysis (Laban, 1966, 1971, 1975a, 1975b, 1988; Davies, 2001; Davis, 1978). Laban was responsible for initiating a new form of expressive dance in the early part of the century, in Germany and then across Europe, known as *Ausdruckstanz* or Expressionist dance which “celebrated the living body and spirit at the same time as it abstracted and extended human experiences.” (Bradley, 2009, p. 30). Laban’s modern dance was inspired by his studies in modern art and particularly the avant-garde practices of Wassily Kandinsky; Kandinsky’s treatise ‘Concerning the spirituality of art’ was a major influence in Laban’s artistic thinking (Foster, 1977).

Laban’s theories are influenced by many of the great modern thinkers, artists and scientists of the time, such as, Emile Jaques-Dalcroze and her *Eurythmics*, which shared similarities with Laban’s work in relation to the natural rhythms of the body. Similarities in Laban’s thought can also be seen in the German modern philosophers; in Hegel, with his synthesis of antagonistic tendencies, and Fichte, who was concerned with self-expression and truth (Foster, 1977, pp. 42-43). Polarity and dualism as seen in his effort charts, and discussed further in Chapter Four, are key to his theories on movement. He was also concerned with unity and ecstasy as can be seen in the works of Dadaism, but most significant is his interest in the essential qualities of movement as a reflection of man’s inner states:

The shapes and rhythms which are formed by basic effort actions, movement sensations, incomplete effort, movement drives, give information about a person’s relation to his inner and outer world. His mental attitude and inner participations are reflected in his deliberate bodily actions as well as in the accompanying shadow movements.

(Laban, 1988, p. 115).

This concern of Laban’s reflects his passion to unite the mind and body duality present in the modern philosophy of Descartes. However, though

the aim was to unite, the overarching hierarchical view of mind over body, from the classicists pervaded thinking at that time. Laban therefore saw the significance of the body in its capacity to represent the ‘inner’ attitudes of the mind, and the mind retained its primacy. This concern to unite was shared in phenomenological philosophy and most notably the philosophy of Maurice Merleau-Ponty (1908-1961). Whilst phenomenology and its key theorists are discussed further in Chapter Three, it is important to note here the modernist roots of phenomenology. Characterised by a search for the essence of being, and an understanding that the world can be revealed through close examination of universal properties, the phenomenologists sought to overcome this duality of mind and body within the philosophy of Descartes.

The shared connections between Merleau-Ponty’s phenomenology and Laban’s choreological studies are apparent in their theories concerning the body in perception and movement. Maureen Connolly and Anna Lathrop (1997), suggest an understanding of their works “side by side” can only be appreciated in retrospect, even though Merleau-Ponty would have been writing his *Phenomenology of perception* (1945) at the same time that Laban was articulating his life’s work in choreology in collaboration with his long-term partner Lisa Ullmann (1907-1985). Both Laban and Merleau-Ponty developed their philosophies out of a lived experience, and both were concerned with a philosophy of the body. As with phenomenology, Laban’s method began with description and then moved to a vocabulary for explaining the relation between form and feeling. However, Laban’s method was through practice; Laban was not a traditional theorist or philosopher, or even a dancer, however it was always within the studio that he explored his ideas.

Despite Laban’s apparent dualistic approach to movement in his oppositional descriptions of movement qualities (discussed further in Chapter Four), he considered movement as either in flux or in harmony between the polar ends. Both Laban and Merleau-Ponty sought to unite

the oppositions evident in Modernist thought and in particular between mind and body.

The scientific age of industrial man has yet to find ways and means to enable us to penetrate into the mental side of effort and action so that the common threads of the two kinds of thinking can finally be re-integrated in a new form... We need an authentic symbol of the inner vision to effect contact with the audience, and this contact can be achieved only if we learn to think in terms of movement.

(Laban, 1988, p. 19-20)

In similar terms, Merleau-Ponty states:

All my knowledge in the world, even my scientific knowledge, is gained from my own particular point of view, or from some experience of the world without which the symbols of science would be meaningless. The whole universe of science is built upon the world as directly experienced, and if we want to subject science itself to rigorous scrutiny and arrive at a precise assessment of its meaning and scope, we must begin by reawakening the basic experience of the world of which science is the second-order of expression.

(Merleau-Ponty, 1945, p. ix)

Both Laban and Merleau-Ponty are associated with modernism and yet phenomenology, in particular, can be seen to challenge modern thought and align with the project of postmodernism to some extent. In the latter half of the twentieth century, the term 'postmodern' came to take on the precise meaning that it is known for today, as a reaction against both modernism and modernity:

Creative artists began to rebel against the strictures of the modernist style, which demanded, for example, abstraction in art and dissonant non-tonal composition in music... Philosophers and cultural theorists reacted against theories such as structuralism, which reduced the world to a series of interlinked systems with their own internal dynamic, or 'deep structure'.

(Sim, 2011, p. ix).

Postmodernism challenges many modern values; whilst modernism was concerned with principles of subjectivity, identity and unity, postmodernism foregrounds difference and plurality. However, Victor Burgin acknowledges

the move to postmodernism had the same ambiguities as the move from classism to modernism;

It seems likely that 'conceptualism' is destined, for the moment at least, to be represented as that 'movement' which, by undermining 'modernism', paved the way for 'post-modernism'. None of the 'isms' here, however, were, or are, unitary phenomena; nor do such cultural phenomena simply give way to one another like television programmes in an evening's viewing. Aesthetically, culturally, politically, conceptualism comprised both tendencies for change and conservative tendencies. The same is true of this present period of 'postmodernism'.

(1986, p. 47)

Consequently, phenomenology as a modernist framework associated primarily with its founder, Edmund Husserl (1859-1938) became challenged among philosophers; this is elaborated on in Chapter Three. The question that therefore needs to be considered is what Merleau-Ponty's relationship was to modernism and postmodernism, and how, and indeed why it should be viewed now. Merleau-Ponty's commitment to Cartesianism is highly ambivalent. In *Phenomenology of perception*, philosophy for Merleau-Ponty is in complete accord with the entire modern tradition set up by Descartes, as a 'rigorous science' and "study of essences; and according to it, all problems amount to finding definitions of essences." (Merleau-Ponty, 1945, p. vii). Yet, on the other hand, he is best known for his attack on Cartesian dualism.

I am thinking of the Cartesian *cogito*, wanting to finish this work, feeling the coolness of the paper under my hand, and perceiving the trees of the boulevard through the window. My life is constantly thrown headlong into transcendent things, and passes wholly outside me. The *cogito* is either this thought which took shape three centuries ago in the mind of Descartes, or the meaning of the books he has left for us, or else an eternal truth which emerges from them, but in any case is a cultural being of which it is true to say that my thought strains towards it rather than that it embraces it, as my body, in a familiar surrounding, finds its orientation and makes its way among objects without my needing to have them expressly in mind.

(Merleau-Ponty, 1945, p. 429)

His thinking also went through a significant change in his final work, *The visible and invisible* (1964), with regard to the purpose of his philosophy:

What we propose here, and oppose to the search for the essence, is not the return to the immediate, the coincidence, the effective fusion with the existent, the search for an original integrity, for a secret lost and to be rediscovered, which would nullify our questions and even reapprehend our language. If coincidence is lost, this is no accident; if Being is hidden, this is itself a characteristic of Being, and no disclosure will make us comprehend it.

(Merleau-Ponty, 1964, p. 121-122)

With regard to postmodernism, Merleau-Ponty was never noted, at the time to have this particular mode of thought which has flourished after his death, yet in retrospect, many contemporary philosophers have argued for his philosophy to be considered as 'postmodern' or at the very least as sharing a common critique of modern philosophy (Busch and Gallagher, 1992). Jacques Derrida, in his critique of modernism, returns to the hierarchies of opposition as defined in both early modernity and modernism; he describes this as "a violent hierarchy. One of the two terms controls the other (axiologically, logically, etc.) holds the superior position. To deconstruct the opposition is first... to overthrow [*renverser*] the hierarchy." (1967, p. lxxvi-lxxvii). Here, Derrida argues for the reversal and displacement of the hierarchy.

According to Derrida, the unison of the two oppositions as in modernist thought is not possible, however, there is always a 'trace' of one in the other. Thus the relation between the two terms is reflexive. This idea is relevant to Merleau-Ponty's work, particularly in relation to his notion of the reversibility of touch: "I can feel myself touched as well and at the same time touching" (1964, p. 142), explored further in Chapter Three. Thus, it is surely from this postmodern perspective that phenomenology can be invested with a new meaning and continued relevance. However, not only can a relationship to postmodern thought be found in Merleau-Ponty but the fact that Merleau-Ponty is able to be reread in the differing ways that

he has been, is a reflection of the complexity of the approach in Merleau-Ponty's text.

Surely, one thing it does is to confirm the fact that [Merleau-Ponty's] work has indeed become a "classic," that is, something that can no longer be taken "literally," that can properly be read in a number of different ways, precisely because there is more to the work than what the author himself thought he was putting in to it and because a text, to be a text, needs readers who can always see more in it.

(Madison cited in Busch and Gallagher, 1992, p. 127)

1.3 Science / art

After identifying the broader mind/body divide apparent in modernist thought, it is pertinent to discuss what implications this divide had on the arts and sciences. David Bohm (1917-1992), renowned physicist and theorist, describes the purpose of both art and science as one concerned with mans "fundamental need to *assimilate* all his experience." (2004, p. 33). He saw it necessary to relate this shared goal to the goal of religion, "concerned centrally with the question of experiencing *all* life, *all* relationships, as one unbroken totality, not fragmented, but whole and undivided." (Ibid, p. 35). The development of scientific reason within the modern age and the scepticism in God and myth reflects, for Bohm, a "fragmented and confused" (Ibid, p. 36) relationship between art and science:

Science developed at an unparalleled pace in technical directions, but it seems to have parted almost completely from its role of aiding man to assimilate the universe psychologically, so that he could feel at home in a world that he understands and to the beauty of which he can respond inwardly and wholeheartedly. On the other hand, it seems that artists are not generally very concerned with the scientific interest in seeing the fact, *whether one likes it or not*. Indeed it seems that many artists (though, of course, not all) have rather widely tended to accept the current view, which regards human relationships, expressed in culture (including art, literature, music, drama, and so forth), as a field that can be manipulated at will in order to give pleasure, excitement, entertainment, and satisfaction, quite apart from questions of fact, logic, and coherence that are of central importance to the scientist.

(Ibid, p. 36)

This view of the modern arts and sciences as concerning two opposing stances toward man and universe, has been further propounded in a lecture titled 'The two cultures.' Over fifty years ago, scientist and novelist C. P. Snow described how "the intellectual life of the whole of western society is increasingly being split into two polar groups... Literary intellectuals at one pole - at the other scientists" (Snow, 1998, pp. 3-4). Increasingly, academics aligned with one methodology over another, and further, became characterised by the hierarchical nature of the binary opposite, and thus, the privileging of science over art. Science was necessarily seen as concerning truth while the arts were:

often interwoven with religion, with the purpose of backing up the illusory aspects of religion by giving these aspects a false air of reality and concreteness, in the form of beautiful and skilfully made images and symbols of gods and supernatural forces.

(Bohm, 2004, p. 35).

Thus, within academia, scientific method is given precedence over artistic enquiry.

Postmodern thought, however, juxtaposes art with science and questions the validity of science as concerning truth. Karl Popper (1902-1994), a philosopher of science, criticised the scientific method of induction in which the scepticism of Descartes was employed to assert that nothing can be known with certainty except that which is actually observed, and thus that which is observed is regarded as a verifiable truth. However, as Popper argued, "[w]e cannot identify science with truth, for we think that both Newton's and Einstein's theories belong to science, but they cannot both be true, and they may well both be false." (Popper cited in Magee, 1973, p. 28). From here it is necessary to address the role technology has played in bridging the modern divide between mind/body and art/science.

1.4 Technology

As Paul Forman writes, "[t]his postmodern primacy of ends is a principle reason for the striking reversal since about 1980 of relative rank and role

between science and technology, to the advantage of technology and the great disadvantage of science.” (2007, pp. 3-4). Forman’s thesis “is that modernity is when ‘science’ denotes technology too; postmodernity, when ‘technology’ denotes science too.” (Ibid, p. 4) This idea of the primacy of science reveals a commitment to method; that the means sanctify the ends and can only be attained through them. This view is reflected in modern philosophy, and with regard to the earlier commentaries of phenomenology as a science, however Forman notes that another key phenomenologist, Martin Heidegger (1889-1976), discussed further in Chapter Three, recognized the importance of technology as prior to science:

Chronologically speaking, modern physical science begins in the seventeenth century. In contrast, machine powered technology develops only in the second half of the eighteenth century. But modern technology, which for chronological reckoning is the later, is, from the point of view of the essence holding sway within it, historically earlier.

(Heidegger, 1954b, p. 108)

Heidegger, however, regarded modern technology as a great danger for humanity and a problem for philosophy. He argued that “[e]verywhere we remain unfree and chained to technology,” (Ibid, p. 100), as “[t]he will to mastery becomes all the more urgent the more technology threatens to slip from human control.” (Ibid, p. 101). This discontent toward technology is reflected in the early postmodernist views of Lyotard and Derrida. For Forman, this reflects how “the primacy of science to and for technology was a firm fixture in nearly everyone’s thought, regardless of their philosophical commitments or social interests.” (2007, p. 2).

Many of the early postmodernists saw technology as having a role in splitting subjectivity. Jacques Derrida, for example, had a vehement dislike of media and performance; “[i]t is normal that he who has taken up representation as a profession should have a taste for external and artificial signifiers, and for the pervasive use of signs.” (1967, p. 305). For Lyotard, postmodernism saw a fragmentation and specialisation of

knowledge aggravated by the rejection of 'grand narratives,' and expansion in technological progress:

Signs of which have been accumulating since the end of the nineteenth century, is not born of a chance proliferation of sciences, itself an effect of progress in technology and the expansion of capitalism. It represents, rather, an internal erosion of the legitimacy principle of knowledge. There is erosion at work inside the speculative game, and by loosening the weave of the encyclopedic net in which each science was to find its place, it eventually sets them free.

(Lyotard cited in Smart, 1992, p. 172)

This view of the fragmentation and specialisation of knowledge saw the emergence of competing narratives, particularly within the arts and sciences; as a consequence Lyotard and Derrida were among those who stressed the postmodern condition was that of fragmentation, split subjectivity and the rejection of meta-narratives. Thus, the early postmodernists viewed technology as the destruction of the self.

Both Paul Forman and Steve Dixon, (notable theorist with the digital arts), note that it is only since the end of the twentieth century that technology has been liberated from such negative views:

Since the mid-1990's, critical readings of the intimate interrelationship between postmodernism/poststructuralism and new technologies have grown rather than abated. Ironically, these critiques commonly celebrate the properties and potentials of these technologies enthusiastically, seemingly unaware of the dark scepticism and even nihilism with which technology is viewed by the very writers they cite.

(Dixon, 2007, p. 139).

Heidegger, ironically, despite his ultimately negative view of technology, argues for a 'poetic reading' of technology, in which art holds a power to reveal the truth and thus enter into a 'free' relationship with technology that is constantly making new incursions into contemporary lives:

Could it be that the fine arts are called to poetic reading? Could it be that revealing lays claim to the arts most primally, so that they for their part may expressly foster the growth of the saving power, may awaken and found anew our vision of that which grants and our trust in it?

(Heidegger, 1954b, p. 113).

Many digital performance artists view the fragmentary nature of technology as merely a different manifestation of the holistic self.

The split subject suggests the wholly divided self, like the medical schizophrenic who lacks control over warring personas with opposing motivations. This is not the case for the posthuman performer, who is typically a control freak, with acute awareness of the double as both an embodied representation and performed index of the self, not a separate, differentiated subject, nor far less some uncontrollable chimera.
(Dixon, 2007, p. 154).

The role of technology within postmodern practices can, therefore, be seen as transdisciplinary in its application to both the arts and the sciences for advancing knowledge. However, science can still be differentiated in its ability to be objectively falsified, as in Popper's account. Thus although the distinction between the 'rigorous' knowledge allegedly produced by science, and the more creative insights of the arts is less firm, as Robin Nelson writes, "[p]ractice-as-research is not characteristically data based and the organic nature of creative process means that the laying out of methodologies in advance seems to beg the question of methodical process more than it does in scientific research models." (2009, p. 113).

1.5 Practice-as-research

Within practice-as-research, the problem therefore remains with the rigour of the methodological approaches used in assimilating knowledge. The model presented below is a development of the model outlined by Robin Nelson in his chapter titled 'Practice-as-research: knowledge and their place in the academy' in the book *Practice-as-research: in performance and screen* (2009), which he then expanded on in a presentation in 2010 to the Working Group for International Benchmarking of Research Degrees.

Nelson draws on the work of Gilbert Ryle (1900-1976) and Michael Polanyi (1891-1976), two philosophers concerned with knowledge acquisition. It is Ryle in his key work *The concept of mind* (1990) who first distinguishes between knowledge which is tacit and gained through practice, and

knowledge which is propositional. Polanyi, on the other hand, in his works *Personal knowledge* (1958) and *The tacit dimension* (1966) also deals with tacit knowledge while employing a rigorous model that directly addresses how they come to ‘know what’ they know.

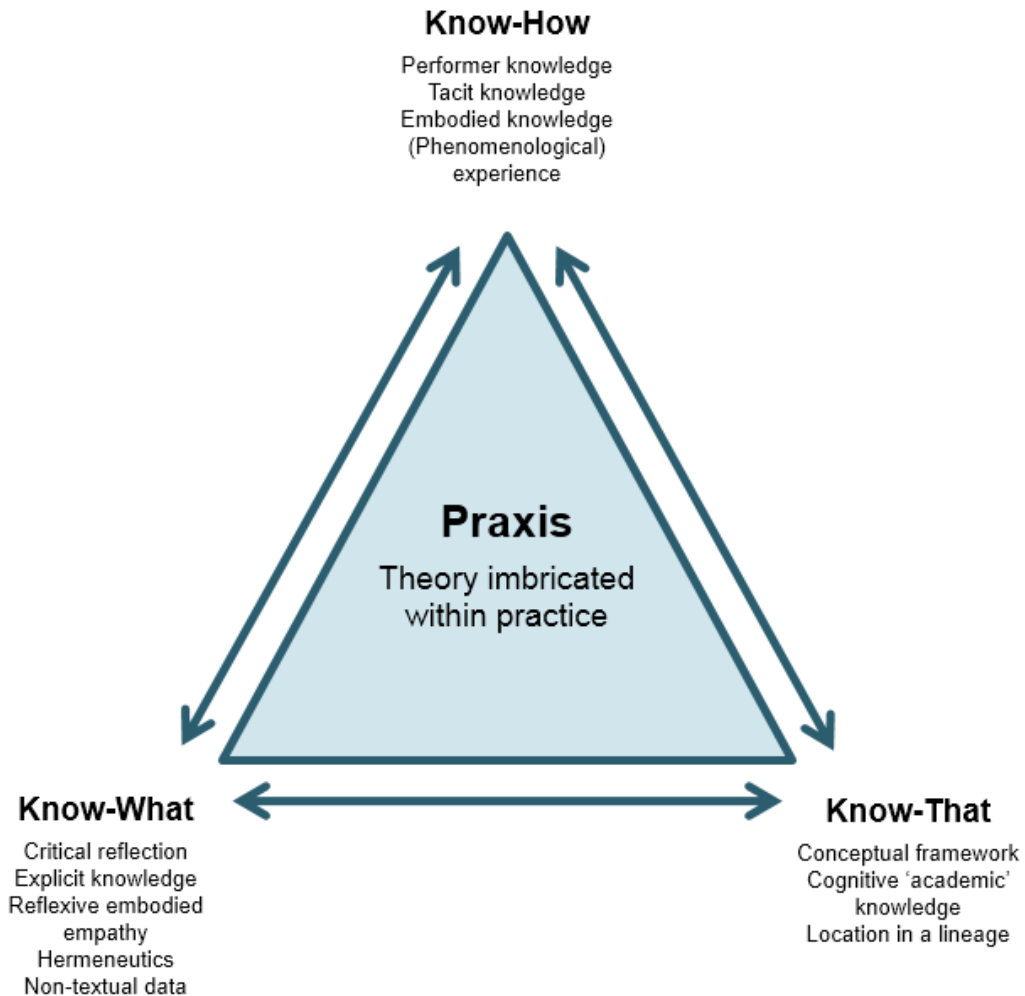


Figure 1: Performance-as-research model adapted from Nelson (2009)

In respect to Nelson’s model, ‘know that’ reflects knowledge gained through theoretical contextualization and academic critique, as evidenced in this opening chapter and the subsequent chapters within this thesis. However, while this thesis could stand on its own within the academic tradition, it is not the totality of knowledge gained through this study. ‘Know how’ for example is evidenced in the embodied knowledge of the dancers and researcher drawn upon in this study; their unique understandings of ‘flow’ within dance and their empathic responses to movement. Finally,

'know what' are the various dialogic practices utilised in explicating that embodied knowledge.

Within this study, visualization technologies are drawn upon to question whether science can lead to developments in understanding creativity. Science itself can be argued as creative; Bohm, for example describes the creative processes at play in constructing new paradigms within science, and conversely, he argues "that art has, and always has had, a certain factual aspect, in the sense that a good work of art must be coherent in itself, as well as with the basic natural laws of space, colour, form, light, and of how they must be perceived." (2004, p. 47).

Within this chapter, therefore, a transdisciplinary approach to the body has been identified, drawing on a chronology of thought in philosophy, art and science. It has both acknowledged and overcome the modernist dualisms toward mind and body, first propounded by the Ancient Greeks, and revived in the philosophy of René Descartes. The chapter addresses areas of connection between art and philosophy, as with Laban and Merleau-Ponty, and areas of contention as with their respective alignment with modernism and post-modernism. Finally, it draws on the role of technology as a transcendental bridge between the arts and the sciences in advancing knowledge, and its particular role in this study as a method for explicating that knowledge.

PART TWO: FINDING FLOW

Chapter Two: Understanding Flow

This chapter addresses the key theorists and concepts underpinning Part Two, opening with a discussion of Mihalyi Csikszentmihalyi's interest in flow before moving to a discussion on embodiment particular to phenomenological studies. From here, the chapter addresses those practices within dance which look at somatic experience in the body as well as discussing dance theorist Rudolf Laban in regard to the analysis of movement. Finally, the chapter closes with an exploration of phenomenology in dance by addressing two key theorists: Maxine Sheets-Johnstone and Sondra Fraleigh.

2.1 Flow theory

Mihalyi Csikszentmihalyi (b.1934) was the founder of flow studies. He began his career in America after moving there from Hungary to study philosophy. Disillusioned by the course, he then embarked on a design course inspired by Bauhaus type designs. However, this course still did not fulfil his desire to study human happiness after his experience of World War II and seeing the effects of it on his family and friends. He finally found a psychology course at the University of Chicago and went on to a doctoral degree exploring creativity which led him to encounter flow in the artists he observed. After securing an academic position at Chicago, he was later awarded funding for his research into flow.

Csikszentmihalyi's work on flow has spanned nearly forty years beginning with his seminal work *Beyond boredom and anxiety: experiencing flow in work and play* (1975). The work addresses the key concepts of flow theory

in order to seek ways of applying this experience in work contexts. His later work *Flow: the psychology of optimal experience* (1990) was a concise summary of his findings designed for a wider readership. Some of his later works (c.1996 2000, 2004) address issues of finding flow and help the reader to learn techniques for enhancing their everyday experiences both at work and at home. As stated in the preface to the 25th anniversary edition of *Beyond boredom*, Csikszentmihalyi's theories have been applied to "improving schools, designing automobiles and museums, coaching professional football teams, rethinking organisations and therapeutic practices." (2000, p. ix).

In dance the application of Csikszentmihalyi's flow theory is an emerging area of study, with one article by positive psychologist Kate Hefferon and Stuart Ollis in 2006, and a number of recent conference papers by dance scientist Elsa Urmston and dance practitioner and lecturer in dance, James Hewison (Bradley and Hewison, 2010; Urmston and Hewison, 2012, 2013). Hefferon and Ollis' article addresses nine professional dancers, specializing in ballet, contemporary, jazz, Irish and Canadian dance. The dancers were interviewed with a focus on elucidating which characteristics of flow as defined by Csikszentmihalyi were of most importance within dance. The article also addressed environmental factors particular to dance (music, choreography, stage space and unfamiliar locations) in order to address particular influences of flow. Urmston and Hewison's research addresses flow and risk in the context of contact improvisation and pedagogy. Their aims were:

[T]o examine the phenomenon of risk-taking within the learning context and how flow-friendly environments can enhance the reciprocal pedagogical experience of students and staff alike and, in turn, how this can optimise performance in the learning journey and skill acquisition of Contact Improvisation.

(Urmston, 2013)

Whilst Hefferon and Ollis, and, Urmston and Hewison's research focus was practical with regards to the specific dance practices referenced, neither they, nor Csikszentmihalyi, explicitly deal with the body in flow and

the experience of flow through the body. That said, Csikszentmihalyi does address the body in *Flow: the psychology of optimal experience*, where he regards the body as vital for experiencing flow. However his chapter 'The body in flow' largely addresses the types of activity which produce flow experiences rather than elucidating the role of the body within such experiences.

2.2 Embodiment

Phenomenology seeks to describe an individual's lived experience, focussing on how bodies are experienced at a subjective and intersubjective level. The key phenomenologists, Edmund Husserl (1931, 1990), Martin Heidegger (1927, 1954a, 1954b) and Maurice Merleau-Ponty (1945, 1964, 1973) will all be discussed in greater detail in Chapter Three. However, it is important to note their contribution to research on embodiment and its subsequent discourse.

There is much literature on the philosophy of phenomenology and its key proponents (Hammond, Howarth and Keat, 1991; Moran, 2000; Moran and Mooney, 2002; Shultz, 1975; Sokolowski, 2000). The focus of this thesis explores Merleau-Ponty and the literature surrounding his work (Langer, 1989; Macann, 1993; Romdenh-Romluc, 2011) as well as Heidegger (Mulhall, 1996). There are also many new studies which address the concerns of these phenomenologists in relation to embodiment within a philosophy of mind though addressing cognitive science (Gallese, 2006, 2007a, 2007b, 2008, 2011). In this research the aim is to complement these fields of study through the application of phenomenology to flow.

Phenomenology often compares itself with the sciences, as in Merleau-Ponty's description of phenomenology as a "rigorous science." (1945, p. vii). Merleau-Ponty in particular addressed psychological and empiricist accounts of the mind and body in order to challenge the position of science in elucidating 'truth;'

I cannot conceive myself as nothing but a bit of the world, a mere object of biological, psychological or sociological investigation...Scientific points of view, according to which my existence is a moment of the world's, are always both naïve and at the same time dishonest, because they take for granted, without explicitly mentioning, it, the other point of view, namely that of consciousness through which from the outset a world forms itself round me and begins to exist for me.

(Ibid, 1945, p. ix)

However, within the key phenomenologist's works, as cited above, there is a lesser connection with the arts. Whilst all of the four phenomenologists draw on examples from music, dance and art, only Heidegger aims at providing a phenomenology of art. In his essay 'The origin of the work of art,' Heidegger claims that works of art not only manifest the style of a culture, but articulate it, and produce a shared meaning. Heidegger addresses art through the appreciation of it and its ability to communicate; however, it is the creation of artwork through embodied subjects which this research is most interested in.

2.3 Moving experience

It is from this perspective, of the embodied creation of art, that the research approaches improvisation in dance. Within the field of dance, improvisation is considered one of the key elements of creative practice. Many dance practitioners have provided improvisation techniques and practices for use in the creative process (Minton, 2007; Blom and Chaplin, 2000, Morgenroth, 1987). The cited authors offer comprehensive guides and ideas for improvisation tasks within dance, often to create movement for dance rather than as a practice of its own.

However, there are many practitioners who write about dance improvisation as a way of theorising practice and in so doing consider notions of embodied knowledge (Albright, Cooper and Gere, 2003; Lycouris, 1996; Tufnell and Crickmay, 2007; Bannerman, Sofaer and Watt, 2006). In this research, a focus is placed on understanding improvisation as a skill which relies on a practical knowledge in the body for creating

new movement in the moment of performance. This draws on the practices of post-modern practitioners such as Steve Paxton, Simone Forti and Anna Halprin among others, and these are discussed in more detail in Chapter Five. Often the research into improvisation addresses the ‘flowing’ nature of the experience, for example in terms of flow of thought or flow of motion, but does not explicitly address flow in terms of the positive state an individual can enter.

In Chapter Five, certain practices are addressed which explore embodied ways of moving and bring awareness to the body in order to affect positive change. Imagery is a technique which utilises improvisation; Eric Franklin (1996, 2003, 2006, 2012) explores somatic imagery within dance to enable optimal alignment and movement practice as well as inspire new movement from an embodied perspective. The Franklin Method uses dynamic imagery and anatomical embodiment to enable lasting positive change in body and mind. While the Franklin Method draws on improvisational practice, it is less of a creative or choreographic tool, though it can be applied in a performance context.

In contrast, *butoh* is a dance specific practice that utilises imagery as a choreographic tool to enable the dancers to experience other states of being. *Butoh* was developed by two Japanese practitioners, Tatsumi Hijikata and Kazuo Ohno, and is discussed further in Chapter Five. *Butoh* has been practiced and theorised by many Western practitioners (Barbe, 2002, 2003, 2011; Barber, 2005; Barber and Rotie, 2005; Fraleigh, 1999, 2010; Fraleigh and Nakamura, 2006; Rotie, 1996,). The theorisation of this practice focusses on *butoh* as a way of training the Western dancer in embodied practices which enhance individual exploration and emphasise kinaesthetic ‘listening’ and response.

2.4 Understanding experience

The final area of research this dissertation addresses in regards to embodied dance is the research of Laban (1966, 1971, 1975a, 1975b, and 1988). Specifically it discusses his research regarding movement analysis

as a method for describing the flow experience in dance. Laban's research has been developed by many practitioners (Davies, 2001; Davis, 1978; Longstaff, 2008; Maletic, 1987, McCaw, 2006). Their research explores Laban's method of movement analysis as a means through which to enhance the assessment of creative movements. However it is Lamb, Laban's student, who develops this technique further as a way for analysing the movement of workers to enhance efficiency (Lamb, 1965; Lamb, 2012; Lamb and Turner, 1969; Lamb and Watson, 1979). Lamb's research, explored further in Chapter Four, addresses how, in order to make judgements on an individual's decision-making processes, Laban's research can be used to analyse nonverbal movement behaviour.

Other studies which address personality assessment through movement analysis include Michael Argyle's *Bodily communication* (1988), Carol-Lynne Moore and Kaoru Yamamoto's *Beyond words: movement for observation and analysis* (1988) and E. T. Hall's research, including *The silent language* (1990). Argyle's work addresses the primary functions of nonverbal bodily behaviour. His research suggests that individuals differ in their ability to make use of these functions and invented the concept of social skill. Moore and Yamamoto draw on Laban's work to present a range of approaches for examining the everyday social interactions. Hall's research was the first to address space proxemics in understanding social interaction but also addressed cultural differences in body language.

2.5 Dance and phenomenology

One area which has not yet been addressed is a phenomenology of dance. A phenomenological perspective of dance rests in the subjective experience of the moving body. It requires a holistic rather than mechanistic understanding of the body. The two most notable theorists and practitioners in the area of dance and phenomenology are Maxine Sheets-Johnstone (b. 1930) with her key work *The phenomenology of dance* (1966) and Sondra Fraleigh (b. 1939) with her work *Dance and the lived body* (1987). They are interested in the experience of dance, and the

structures of that experience, drawing on the notion of the lived body and its appropriateness to understanding the experience of dance.

2.5.1 Pre-reflective experience

While neither Fraleigh nor Sheets-Johnstone explore the concept of 'flow', both touch on the quality of the experience when elucidating the experience of dance in the lived body. For both theorists the ways they describe dancing aligns most closely with flow experiences in dance which is when an individual loses a sense of self and is totally engaged in the activity. The 'lived experience' of dance can be explained as when dance is "there for us" and "we are totally engaged in our experience of that happening." (Sheets-Johnstone, 1966, p. 3). Both Sheets-Johnstone and Fraleigh describe an experience of dance which is enjoyable and optimal.

In Sheets-Johnstone's account of dance, she states that she aspires to a 'pre-reflective' consciousness of dance which is immediate to an individual in their engagement of dance. For Sheets-Johnstone this 'direct intuition' can be "apart from any prejudice, expectation or reflection." (Ibid, p. 12):

It is only when we reflect upon the experience of the work as it is being created and presented, when we remove ourselves from our immediate encounter with it, that we interrupt the flow and fragmentize its inherent totality. Such reflection ends by obscuring the meaning of the dance, for the meaning emerges only as there is lived experience of it; only in apprehending the dance in its totality do we discover its unique significance.

(Ibid, p. 6)

Sheets-Johnstone further states:

She cannot reflect upon her body in movement as an object and make it exist apart from the form she is creating, without immediately breaking the spatial unity and temporal continuity of the dance into discrete points and instants... If the audience reflects upon the dance as it is being presented, it destroys the illusion of force by dividing it into discrete moments and points and ascribing values which are non-existent within the world of illusion.

(Ibid, p. 45-46)

She suggests therefore, that dance is embodied in the lived body of the dancer and is directly intuited by both dancer and audience. However, this is dependent on dancer and audience being able to become pre-reflectively aware of the dance, rather than reflecting on the dance as an object of consciousness.

While Sheets-Johnstone makes reference to pre-reflective and reflective states, she does not however describe in detail what she means by these terms. Sondra Fraleigh, categorises the same two states, however, unlike Sheets-Johnstone, she presents clear definitions of those states. For Fraleigh the reflective state “refers either to the body when it becomes the object of attention or to an objective attitude toward the body.” (Fraleigh, 1987, p. 141). The reflective state can be considered as an objectification of the body but also a ‘known’ state, while the pre-reflective state is entirely subjective and is when the dancer is “living the present centred moment in her dance” (Ibid, p. 14); it is entirely lived and not known. It is Fraleigh who suggests that dancers perform most effectively when they are in a state of pre-reflective consciousness; “the dancer is at her best... when she becomes present centred” (Ibid, p. 23).

While Fraleigh does provide some insight into the nature of flow in dance through distinguishing between the two states, along with Sheets-Johnstone, she does not ascertain how a dancer might actually access and/or control the pre-reflective states that she regards as preferable for dance. There is little distinction between the process of making dance and of the performance of dance with regard to these states. There is also a paucity of description of dance that does not fit this pre-reflective state. In turn, this raises the problematic issue as to just what it is that is experienced while ‘dancing’ in the reflective state, and this is a matter that neither Fraleigh nor Sheets-Johnstone attend to.

2.5.2 Embodied knowledge

Through an understanding of pre-reflective/reflective consciousness, Sheets-Johnstone and Fraleigh address a theory of embodiment. Both

draw particularly on Merleau-Ponty's anti-dualist stance and the uniting of mind and body in his conception of embodiment, and they do so in order to develop an understanding of knowledge in the body. "Embodiment is not passive, it is articulate," (Fraleigh, 1987, p. 13), therefore dance is an embodied way of knowing. Sheets-Johnstone presents her understanding of bodily knowledge through a discussion of improvisatory practice (2011), while Fraleigh was the first to discuss this and develop this idea from a critique of Sheets-Johnstone.

Sheets-Johnstone felt that dance improvisation presented thinking in movement because thought is motional:

To say that the dancer is thinking in movement does not mean that the dancer is thinking *by means of* movement or that her/his thoughts are *being transcribed into* movement. To think is first of all to be caught up in a dynamic flow; thinking is itself, by its very nature, kinetic. It moves forward, backward, digressively, quickly, slowly, narrowly, suddenly, hesitantly, blindly, confusedly, penetratingly. What is distinctive about thinking in movement is not that the flow of thought is kinetic, but that the thought itself is. It is motional through and through; at once spatial, temporal, dynamic.

(Sheets-Johnstone, 2011, p. 421)

Sheets-Johnstone goes on to criticise the assumption that thinking is tied to language, as for her this represents a dualistic understanding of human experience. However, she also goes on to describe language as 'post-kinetic', separating movement and language and thus reinforcing the dualism she aims to resolve.

For Fraleigh, "thinking in movement and thinking in language may vary in their forms and bodily manifestations, but both of them are nevertheless ways of thinking; as such they exist on a bodymind continuum." (Fraleigh, 2002, p. 124). Fraleigh argues however, that dance knowledge involves more than bodily skills or knowing how to do movements.

Indeed we commonly speak of skill in dance as a form of knowledge and also speak of kinesthetic intelligence as an aspect of skilful dancing. But dance involves more than just knowing how to do a movement. It also involves knowing how to express the aesthetic intent of the movement and how to create

aesthetic movement imagery. All of these forms of *knowing how* are forms of bodily lived (experiential) knowledge. As such, they are avenues for self-knowledge.

(Fraleigh, 1987, p. 26)

Fraleigh is interested in explicating not *what* dancers know, but *how* they know, through an understanding of implicit bodily knowledge.

This conception however, renders problems with her earlier statement that only the reflective, body-object can be known, and in this sense the body itself can become the object of an individual's attention. She does, however, attempt to address these problems by drawing on Ulric Neisser's five different kinds of knowledge (Neisser, U. 1988). Sheets-Johnstone argues that dancing relies on intent, and thus an individual can know themselves through dance dependent on the fulfilment of the individual's intentions in movement. It is also important to note that Sheets-Johnstone's earlier criticisms of thinking in movement come from her criticism of Merleau-Ponty. She claims Merleau-Ponty's conception of 'habit' (discussed further in Chapter Three) is without kinaesthesia. However, this is a view critiqued by others (Gallagher, 2005; Fraleigh, 2002) as being misguided, and more of a terminological rather than conceptual criticism:

She needs to discredit his attachment to the terms "lived body" and "embodiment" in order to substitute the more general term "animate form" as more expressive of the body's interconnection with all life. But I see no reason to parse this way. Animate forms are embodied forms, and they are lived forms, *lived through* in the present tense.

(Fraleigh, 2002, p. 121)

2.5.3 Descriptive experience

Both Sheets-Johnstone and Fraleigh use a phenomenological method for looking at dance; as a descriptive method, a phenomenology of dance seeks to explain how dance appears to consciousness. Both claim that dance cannot be understood through objective analysis but subjective description. For them, a phenomenology of dance validates the personal and shared experiences of dance, "[phenomenology] provides a first-

person voice for the dancer, the choreographer and the teacher/therapist.” (Fraleigh, 2000, p. 54). Phenomenology, as a method, draws on the notion of the lived body and aims to describe the structures of that experience.

Along with Sheets-Johnstone’s criticisms of Merleau-Ponty’s terminology, Sheets-Johnstone also criticises the out-dated descriptive examples from his psychology case studies, and his method for elucidating essential knowledge. Here, she draws on Husserl’s transcendental reduction, arguing that the process of bringing to light the essential nature of experience should be left to those undertaking philosophical enquiry. For Sheets-Johnstone, Husserl offers a ‘foundational insight’ into the ambiguity that is the “essential character of human existence.” (Sheets-Johnstone, 1984, p. 140). Sheets-Johnstone divides the task of phenomenology between intuitive description and reflexive logical argument. However, the question arises as to the legitimacy of applying Husserl’s transcendental phenomenology to a critique of Merleau-Ponty.

Sondra Fraleigh, therefore, distances herself from Husserl’s transcendental phenomenology, drawing on Merleau-Ponty’s criticism of Husserl’s emphasis on the detached observer, preferring to highlight the impossibility of the observer’s separation from the world. Fraleigh’s process of reflecting backwards reveals the assumptions contained in perception, rather than to directly intuit the dance experience. Her writing often draws on quotations from other dancers about what it feels like to dance and Fraleigh often reconstructs the dance through poetic prose, using the kinaesthetic feeling of the experience as a guide.

However, in Fraleigh’s actual accounts of dance performances, rather than reflecting back to reveal assumptions, her poetic interpretations are presented as almost ‘pure’ description. While she acknowledges alternate interpretations and does not present these descriptions as rigorous phenomenological descriptions, there is still a lack of methodology, in both Fraleigh and Sheets-Johnstone, with regards to providing a reflective phenomenological interpretation of experience.

This chapter has set out to evidence the multitude of work which has been conducted since the areas of flow and phenomenology were first articulated. In particular it has addressed the key academics whose aim it was to apply such theories to the field of dance, providing a critique of such theories in response to the aims of the research. In doing so, the chapter has addressed the need to return to the works of both the key proponents in flow in psychology and phenomenology in philosophy in order to elucidate the structures of those theories in their application for dance and in particular for an understanding of the embodied experience of the dancer.

Chapter Three: Phenomenological Flow

This chapter examines the concept of flow from a philosophical standpoint. It aims to understand what the experience of flow is from the perspective of the embodied subject, addressing phenomenological philosophy to develop an embodied, immersive understanding of experience. The chapter begins by detailing Mihalyi Csikszentmihalyi's understanding of flow, addressing the various characteristics of flow. An understanding of the main tenets of the philosophy of phenomenology is then discussed, briefly identifying some of the key phenomenologists such as Edmund Husserl, Martin Heidegger, and Maurice Merleau-Ponty and their contribution to the field. (Hammond, Howarth and Keat, 1991; Macann, 1993; Moran, 2000; Moran and Mooney, 2002; Sokolowski, 2000).

Phenomenology as a methodology investigates the lived experience, relying on a description of phenomena as they are perceived by an embodied consciousness. The chapter in particular will address Merleau-Ponty's conceptualisation of the body as a site for knowing the world. Drawing on his theory of the habit body, the chapter will explore an understanding of self through the inextricable link of the mind and body. It will also examine Heidegger's theory of temporality in order to develop an understanding of the experience of time in flow. Finally, the chapter will

address what implications this has for individual agency and the ability to act on the world.

3.1 Csikszentmihalyi's flow

Flow is an area of research that explores optimal experience from a psychological perspective. Mihalyi Csikszentmihalyi, a positive psychologist, is considered to be the founder of flow in the context of psychology. His research addresses the state of mind an individual enters when totally immersed in an activity; one of the purposes of positive psychology is to achieve a scientific understanding and implement effective interventions for improving life. Csikszentmihalyi's interest in flow began with decades of research on the positive aspects of human experience.

Within psychology this 'positive' branch compliments traditional areas of psychology by bringing attention to the possibility that focussing only on disorders might result in a partial and limited understanding of a person's condition. Positive psychology adds an important emphasis on scientific method and has seen various practical applications in psychotherapy. Moran and Nemec, experts in the field of psychiatric rehabilitation, stated that their work "suggests a positive psychology framework to strengthen and broaden psychiatric rehabilitation and recovery thought and practice." (2013, p. 202). In education practices flow has also been applied, for example, in a school in Indianapolis. A 'Flow Activities Room' based on Csikszentmihalyi's principles, was set up for students, in order that school could be considered enjoyable as well as rigorous (Whalen and Csikszentmihalyi, 1991). More recently Csikszentmihalyi has also identified flow as a key concept for business (Gardner, Csikszentmihalyi and Damon, 2001; Csikszentmihalyi, 2004).

According to Csikszentmihalyi the term 'flow' itself, "is what anthropologists call a native category – a word frequently used by the informants themselves to describe their experience." (1975, p. 36). Within his research, Csikszentmihalyi initially interviewed participants who

typically experienced such flow phenomena including chess players, rock climbers, musicians, social dancers and basketball players to name a few.

Flow, as defined by Csikszentmihalyi, is when:

Action follows upon action according to an internal logic that seems to need no conscious intervention by the actor. He experiences it as a unified flowing from one moment to the next, in which he is in control of his actions, and in which there is little distinction between self and environment, between stimulus and response, or between past, present, and future.

(Ibid, p. 36)

Csikszentmihalyi is credited with identifying around six to nine characteristics of flow, through his observations and interviews with respondents. The following sub-sections address the eight characteristics as detailed in Csikszentmihalyi's *Flow: the psychology of optimal experience* (1990).

3.1.1 Challenge/skill balance

Csikszentmihalyi identified a common characteristic of flow; every activity where flow is reported must have an element of challenge requiring a particular set of skills. He noted that this challenge does not need to be physical, as, for example, in appreciating art, a skilled art critic takes enjoyment from analysing a conceptually challenging artwork. However, the skill needs to match the challenge in a delicate interplay, where the activity is never too difficult to accomplish, nor too easy that the individual loses interest:

In all the activities people in our study reported engaging in, enjoyment comes at a very specific point: whenever the opportunities for action perceived by the individual are equal to his or her capabilities. Playing tennis, for instance, is not enjoyable if the two opponents are mismatched. The less skilled player will feel anxious, and the better player will feel bored.... Enjoyment appears at the boundary between boredom and anxiety, when the challenges are just balanced with the person's capacity to act.

(Csikszentmihalyi, 1990, p. 52)

3.1.2 Merging of action and awareness

The second characteristic of flow identified by Csikszentmihalyi addresses the moment when an individual is no longer aware of the actions required to complete the task; it is the period when those actions become automatic and spontaneous. It is not the case that the individual is no longer engaged in the challenge of the task, but the application of skill is automatic, innate; it does not require any conscious reflection, only immediate and reflexive action. Within *Flow: the psychology of optimal experience*, Csikszentmihalyi cites a dancer's experience of this characteristic:

Your concentration is very complete. Your mind isn't wandering, you are not thinking of something else; you are totally involved in what you are doing.... Your energy is flowing very smoothly. You feel relaxed, comfortable, energetic.

(Ibid, p. 53)

3.1.3 Clear goals and feedback

In many instances of flow, Csikszentmihalyi cites a third characteristic, that of clear goals and feedback, such as in mountain climbing. The goal is obvious; to reach the top, and the feedback simple; "I am not falling." However, often it is more complex than this, particularly in creative pursuits, for example within dance improvisation there is often not a clear goal or feedback, or at least not one that is perhaps articulated. In this sense, "the rules governing an activity are invented, or negotiated on the spot.... The goal of such sessions emerges by trial and error, and is rarely made explicit; often it remains below the participants' level of awareness." (Ibid, p. 56). There is for example, a fundamental type of feedback within dance improvisation as it "demands a reflexive awareness of when the known is becoming a stereotype." (Foster, 2003, p. 7). The dancer must have a clear idea of what constitutes improvised movement in order to avoid habitual movement patterns.

3.1.4 Concentration on the task at hand

The fourth characteristic of flow as defined by Csikszentmihalyi links with the second characteristic of action and awareness merging. In order for an individual's action to become automatic, there needs to be a complete focus on the task. This is often described as a lack of unwanted disturbances such as personal issues, doubts and insecurities, and reflects the positive component of flow, as in reference to psychic negentropy in positive psychology. However, not only is there a focussing on the content of consciousness but also a temporal focus in which attention is focussed on the present moment:

One of the most frequently mentioned dimensions of the flow experience is that, while it lasts, one is able to forget all the unpleasant aspects of life. This feature of flow is an important by-product of the fact that enjoyable activities require a complete focusing of attention on the task at hand – thus leaving no room in the mind for irrelevant information.

(Csikszentmihalyi, 1990, p. 58)

3.1.5 Loss of self-consciousness

For Csikszentmihalyi, this encompassing focus, which leaves little room for irrelevant stimuli, can also create a loss of an individual's own self-consciousness. "One item that disappears from awareness deserves special mention, because in normal life we spend so much time thinking about it: our own self." (Ibid, p. 62). Yet this loss of self-consciousness is not a loss of self or a loss of consciousness, as particularly in dance, an awareness of individual's body, breathing and the feel of the dance is very important. However, it seems that the loss of self-consciousness in the flow experience often builds a stronger sense of self for the person afterwards.

What slips below the threshold of awareness is the *concept* of self, the information we use to represent to ourselves who we are. And being able to forget temporarily who we are seems to be very enjoyable. When not preoccupied with our selves, we actually have a chance to expand the concept of who we are. Loss of self-consciousness can lead to self-transcendence, to a

feeling that the boundaries of our being have been pushed forward.

(Ibid, p. 64)

For Csikszentmihalyi then, self refers in some respects to an individual's own objectified representation of their being. A loss of self-consciousness refers to the focussing of an individual toward the subjective experience of the activity, thus enabling an individual to develop new ways of being in the world.

3.1.6 The paradox of control

The sixth characteristic of flow experience, as defined by Csikszentmihalyi, typically involves a sense of control, which could be linked to the challenge and skill balance characteristic. Csikszentmihalyi describes it as a confidence in an individual's abilities. However, it is not necessarily about exerting control but is more concerned with the possibility of control. For example, the challenge of the task is part of the flow experience, so it is not about having absolute control, because that could make the individual lose interest, but instead is concerned with the feeling of confidence in an individual's abilities and their lacking the sense of worry about losing control. Csikszentmihalyi describes the "*possibility*, rather than the *actuality*, of control" (Ibid, pg. 60) in the example of a dancer and chess player:

The ballet dancer may fall, break her leg, and never make the perfect turn, and the chess player may be defeated and never become a champion. But at least in principle, in the world of flow perfection is attainable.

(Ibid, p. 60)

3.1.7 The transformation of time

As commented earlier, flow experiences tend to focus the mind temporally, to the present moment, however, there is often an altered sense of that moment. Time can appear to move really quickly or alternatively a few seconds can feel like a few minutes. This altered sense of time can be considered a by-product of the complete focussing of attention and lack of

awareness of external factors. In this sense an individual's sense of time bears little relation to the conventional clock but to an internal time consciousness:

Although it seems likely that losing track of the clock is not one of the major elements of enjoyment, freedom from the tyranny of the time does add to the exhilaration we feel during a state of complete involvement.

(Csikszentmihalyi, 1990, p. 67)

3.1.8 The autotelic experience

Flow experiences are fundamentally intrinsically rewarding, that is that they provide pleasure and enjoyment in and of themselves. The term autotelic can be broken into "*auto* meaning self, and *telos* meaning goal." (Csikszentmihalyi, 1990, p. 67). In autotelic activities the reward is a subjective one, through the completion of a personal goal. This is unlike activities which have an external reward, such as dancing for money, or recognition for an award. In this instance, an external reward would be second to the feeling of dancing for the dancer. For Csikszentmihalyi, this is evident in the way in which flow enriches an individual's life:

The autotelic experience, or flow, lifts the course of life to a different level. Alienation gives way to involvement, enjoyment replaces boredom, helplessness turns into a feeling of control, and psychic energy works to reinforce the sense of self, instead of being lost in the service of external goals. When experience is intrinsically rewarding life is justified in the present, instead of being hostage to hypothetical future gain.

(Csikszentmihalyi, 1990, p. 69)

3.2 Phenomenology

Csikszentmihalyi cites phenomenology as the source of his method (2000, p. xiii). He describes a 'systematic phenomenology' drawing on a description of the stream of consciousness that he had been influenced by when reading the key texts of the early phenomenologists, and in particular, the work of Husserl. Csikszentmihalyi does not, however, provide a complete phenomenological analysis of flow, and thus it is the purpose of this section to explore the ways in which a phenomenological analysis of flow can enhance an understanding of that experience.

In the twentieth century Edmund Husserl (1859-1938), in response to Descartes and his method of doubt, developed his own method for philosophy: phenomenology. Husserl claimed that his phenomenology was a science of the essential structures of pure consciousness, and his key work *Logical investigations* written in two volumes (1900-01) is considered the starting point for phenomenology (Hammond, Howarth and Keat, 1991; Macann, 1993; Moran, 2000; Moran and Mooney, 2002; Sokolowski, 2000). Although the later phenomenologists, such as Martin Heidegger (1889-1976) and Maurice Merleau-Ponty (1908-1961), criticised some of Husserl's philosophy, much of their work developed out of Husserl's writing.

The first Husserlian doctrine which therefore needs to be considered is that of the *Lebenswelt* or life-world. Husserl insisted on the priority of the *Lebenswelt* as the world revealed in our everyday engagement with it. Husserl defined phenomenology as distinct from the empirical sciences, in that it does not concern itself with facts but with first-person subjective experience.

In 1900–01 my *Logical Investigations* appeared as the result of ten-year long efforts for a clarification (*Klärung*) of the pure idea of logic by a return to the bestowing of sense (*Sinngebung*) or the performance of cognition (*Erkenntnisleistung*) which occurs in the nexus of lived experiences of logical thinking. More accurately speaking, the single investigations of the second volume [i.e. the *Six Investigations* themselves] involved a turning of intuition back towards the logical lived experiences which take place in us whenever we think but which we do not see just then, which we do not have in our noticing view whenever we carry out thought activity in a naturally original manner. The thinker knows nothing of his lived experiences of thinking (*Denkerlebnissen*) but only of the thoughts (*Gedanken*) which his thinking engenders continuously. The point was to bring this obscurely occurring life of thinking into one's grip by subsequent reflection and to fix it in faithful descriptive concepts (*in getreuen deskriptiven Begriffen zu fixieren*); further, to solve the newly arising problem, namely, to make intelligible how the forming of all those mentally produced formations takes place in the performance of this internal logical lived experiencing, formations which appear in assertively judicative thinking as multiply formed concepts, judgments, inferences, etc., and

which find their generic expression, their universally objective mental stamp in the fundamental concepts and axioms of logic.
(Husserl cited in Moran, 2000, pp. 93-94)

Husserl, in his later work goes on to define the *Lebenswelt* as “the world in which we are always already living and which furnishes the ground for all cognitive performance and all scientific determination.” (Husserl, 1938, p. 41). He does not deny the importance of the empirical sciences; rather, he asserts that science is no more, and no less, than an effective way of conceptually organising and negotiating the world as it appears to the subject. Husserl argued that the great mistake is to assume that the scientific interpretation is the actual reality of the world, and not a secondary interpretation of a more fundamental perceptual experience of the world. (Moran, 2000).

The second doctrine of Husserl’s phenomenology lies in his doctrine of intentionality. Intentionality refers to the way consciousness is always directed towards objects, not only to internal processes. For Husserl, intentionality includes a wide range of phenomena, from perceptions, judgments, and memories to the experience of other conscious subjects as subjects (inter-subjective experience) and aesthetic experience. Husserl analyses intentionality in terms of three central ideas: the intentional act (mode of thought), the intentional object (the topic, thing or state of affairs), and intentional content (characterisation of the object).

Husserl’s doctrine of intentionality can be understood in terms of his critique of the Cartesian *cogito*. For Husserl, intentionality is missing in Descartes understanding of the *cogito*, Husserl rejected the dualism of objects of consciousness and objects-in-themselves, however he accepted the notion of a methodological suspension of belief in the world in order to achieve the transcendental reduction or *epoché*. Husserl’s *epoché* sets out to produce a purified consciousness, cleansed of any assumptions about the existence of the nature of things beyond what is immanent to that consciousness. (Moran, 2000). So for Husserl, phenomenology is not concerned with empirical facts but with essences:

This phenomenology must bring to pure expression, must describe in terms of their essential concepts and their governing formulae of essence, the essences which directly make themselves known in intuition, and the connections which have their roots purely in such essences. Each such statement of essence is an *a priori* statement in the highest sense of the word.

(1900-01, p. 249)

To attain essential intuition Husserl identifies a bracketing of the 'natural standpoint' including the scientist's account of the world, and any beliefs in the existence of an outside world. Once this is done Husserl argues that an autonomous realm of consciousness, whose principle feature is to intend or direct itself towards objects, can be focussed on.

For Heidegger and Merleau-Ponty, Husserl's *epoché* contradicts the notion of intentionality. For Husserl, the transcendental ego must exist outside of the empirical world, and yet no sense can be made of consciousness except in terms of its engagement with the world. Heidegger and Merleau-Ponty both agreed that it is not possible to abstract oneself from involvement in the world. Both were concerned in somewhat different ways with the individual's being in the world as the experience of an existing self.

Heidegger (1927, 1954a, 1954b) played a key role in examining the question of 'being-in-the-world'. Dasein (being there), is an existence which understands that it exists, and what is more the being of Dasein is, in part, shaped by that understanding.

Dasein is an entity which does not just occur among other entities. Rather it is ontically distinguished by the fact that, in its very Being, that Being is an *issue* for it. But in that case, this is a constitutive state of Dasein's Being, and this implies that Dasein, in its Being, has a relationship towards that Being – a relationship which itself is one of Being. And this means further that there is some way in which Dasein understands itself in its Being, and that to some degree it does so explicitly. It is peculiar to this entity that with and through its Being, the Being is disclosed to it. *Understanding of Being is itself a definite characteristic of Dasein's Being.*

(Heidegger, 1927, p. 32)

'Being-in-the-world' underscores the fact that in Heidegger's philosophy, 'Being' (the Being of Dasein) and 'the world' are not separate entities but must be grasped together. In this sense, there is no subject and object, nor is there any division between internal and external.

Merleau-Ponty (1945, 1964, 1973) argued that "we are condemned to meaning" (Merleau-Ponty, 1945, p. xxii) and developed further the idea of being in the world to emphasize the centrality of the role of the human body on human experience: "[t]he body is our general medium for having a world." (Ibid, p. 169). Merleau-Ponty in his phenomenology of perception, stressed the vitality of human experience and particularly an individual's embodied existence as lived. "Whether a system of motor or perceptual powers, our body is not an object for an 'I think', it is a grouping of lived-through meanings which moves towards its equilibrium." (Ibid, p. 177). He suggests that in understanding human experience, perception brings together an individual's various senses as the body tends towards expression.

Now the body is essentially an expressive space.... But our body is not merely one expressive space among the rest, for that is simply the constituted body. It is the origin of the rest, expressive movement itself, that which causes them to begin to exist as things, under our hands and eyes.

(Ibid, p. 169)

As a dance practitioner, an interest in Merleau-Ponty and his body-centric way of thinking, is central to the research. The key tenets of Merleau-Ponty's *Phenomenology of perception* (1945) will be drawn upon, including his intimate relation of body and world; his experience of other; and the nature of time. Merleau-Ponty's theories will be drawn on to provide a phenomenological analysis of flow. His appropriateness is evident in his use of psychological behavioural disorders to further his understanding of experience, as in his example of Schneider, a war veteran who suffered brain damage, impairing his bodily movements but not his motor abilities. However, while he draws on psychological examples he often rejects both psychological and intellectual conclusions

of such examples, and as he concludes in the case of Schneider, “it becomes clear that the facts are ambiguous, that no experiment is decisive and no explanation final.” (Merleau-Ponty, 1945, p. 134). In the following sections, Merleau-Ponty’s understanding of the body as a spatio-temporal ‘anchor’ in the world will be addressed in order to further Csikszentmihalyi’s definition of flow.

Heidegger, on the other hand can also be linked to flow with regards to positive psychology, through his understanding of authenticity, mind and being. The next section will draw on Heidegger’s understanding of temporality and address his theories on freedom and choice as a positive experience. “Along with the sober anxiety which brings us face to face with our individualized potentiality-for-Being, there goes an unshakable joy in this possibility.” (Heidegger, 1927, p. 358). It is this potential for joy which is the most profound similarity between Heidegger and positive psychology (Crow, 2009).

3.3 The habit body

Merleau-Ponty, in his *Phenomenology of perception*, begins with a consideration of the contribution of the body to an individual’s interactions with the world. He argued that an individual’s primary relation to the world is not a matter of *a priori* thought, as in Descartes *cogito* but rather of practical involvement and mastery. Merleau-Ponty united the mind and body philosophically by invoking the notion of being in the world. “The union of soul and body is not an amalgamation between two mutually external terms, subject and object, brought about by arbitrary decree. It is enacted at every instant in the movement of existence.” (Merleau-Ponty, 1945, p. 102). He maintained that bodily consciousness is manifest in sensory engagement and underpins mental processes.

Furthermore, he developed the concept of the body schema or ‘bodily spatiality’ as the very condition for the coming into being of a meaningful world. The body is immediately present, in that an individual knows where their limbs are without having to look for them: they possess a body

schema. For Merleau-Ponty, this 'body schema' provides an individual with a pre-reflective knowledge of the location of their limbs, however, only insofar as an individual's awareness of their body is inseparable from the world of that individual's perception:

A movement is learned when the body has understood it, that is, when it has incorporated it into 'world', and to move one's body is to aim at things through it...

(Merleau-Ponty, 1945, pp. 160-161)

As Merleau-Ponty points out, to learn to type, or play a musical instrument "is to be transplanted into them, or conversely, to incorporate them into a bulk of one's own body." (Ibid, p. 66) Drawing on Merleau-Ponty's typing example, an individual often does not 'know' where the keys are in a reflective sense, the form of knowledge an individual has is practical, embodied knowledge. It is 'know how' in Robin Nelson's sense; there is a dependence on the individual's 'knowledgeable hands' for its practical meaning. The body schema is thus an implicit procedural knowledge encoded in the body.

In relation to Csikszentmihalyi's theory of flow, this understanding of embodied knowledge or 'know how' can be linked to the characteristic of clear goals and feedback. The goal is characterised as an individual's intention toward the world; "To understand is to experience the harmony between what we aim at and what is given, between the intention and the performance – and the body is our anchorage in a world." (Ibid, p. 167). Thus the feedback relies on an individual's tacit knowledge-in-action. Flow is tacitly anchored in bodily modes of action and reflection.¹

Merleau-Ponty's theory of body schema informs his work on habit and the habitual body. The habit to which Merleau-Ponty refers is far from being a mechanistic or behaviourist tendency to respond to fixed stimuli in a fixed way, implying passivity, but rather it permits new ways of acting and

¹ 'Reflection-in-action' a term developed by Donald Schön (1930-1997) will be explored further in Chapter Seven: Dialogic Flow, in relation to the act of making this 'know how' explicit.

understanding. Merleau-Ponty uses the example of the musician who is at once familiar with a new musical instrument. It becomes a question of the bodily comprehension of a motor significance, which enables musicians to lend themselves completely to expressing the music without having to think about the position of their fingers:

Between the musical essence of the piece as it is shown in the score and the notes which actually sound round the organ, so direct a relation is established that the organist's body and his instrument are merely the medium of this relationship... in giving himself entirely to the music, the organist reaches for precisely those stops and pedals which are to bring it into being.

(Merleau-Ponty, 1945, pp. 168-169)

This draws a parallel to the characteristic of action and awareness merging within Csikszentmihalyi's theory of flow. In this sense, habit is not prescriptive but "endow[s] the instantaneous expressions of spontaneity with 'a little renewable action and independent existence'." (Ibid, p. 169). For Csikszentmihalyi, while in flow consciousness works smoothly and action follows seamlessly; an individual is aware of their actions but not of the awareness itself. However, whilst Csikszentmihalyi addresses body and mind as a two way concept, the mind is still elevated in his conception on flow. Merleau-Ponty's writing thus helps to identify embodiment as a condition of flow experience.

3.4 Temporality

The habit body as well as being spatial and embodied has a temporal structure which is not of the order of objective time or 'clock time'. Here, it is important to first address Heidegger's notion of temporality in relation to Dasein, from his *Being and time* (1927). Heidegger based his theory of temporality on what he called the 'care structure;' that Dasein's Being is orientated toward the future, while acknowledging itself as past with an openness to the present:

Temporalizing does not signify that ecstases come in a 'succession'. The future is *not later* than having been, and having been is *not earlier* than the Present. Temporality

temporalizes itself as a future which makes present in the process of having been.

(Heidegger, 1927, p. 401)

This ecstatic quality shows the human capacity to be at once ahead, behind and alongside the individual; it is a self-generating, self-defining process.

Where Heidegger insisted upon the unity of the three ecstasies, it is Merleau-Ponty who clarifies their relation to temporality as experienced by the individual. Merleau-Ponty's conception of temporality has its roots in both Heidegger's *Being and time* (1927) and Husserl's *Cartesian meditations: an introduction to phenomenology* (1931). There are three levels of temporality according to Merleau-Ponty: The first level or world, where transcendental time is public and measured time which is located in the world. Second level or internal, immanent time is private, it is the sequences of experience that occur before, after or concurrent with another yet is not measurable in the same way a clock measures time. Finally, the third level addresses the consciousness of internal time which accounts for the experience on the second level. Internal time consciousness is more immanent than the individual's subjective temporal processes and underlies both the subjective flow of internal time and the objective flow of world time.

Internal time consciousness retains its own preceding living presents and builds up its own continuous identity. The living present is the full and immediate experience of temporality that an individual has at any instant and is composed of: 'primal impression', the immediate impression of a temporal object; 'retention', the retained living present that has just relapsed; and 'protention', the first sense of 'something coming'. (Merleau-Ponty, 1945). The notion of 'being in the moment' links to the conscious experience of the fleeting living present, and thus to an individual's perception of time with regards its transformation in flow experience:

[M]ost flow experiences do not depend on clock time; like baseball, they have their own pace, their own sequences of

events marking transitions from one state to another without regard to equal intervals of duration.

(Csikszentmihalyi, 1990, p. 66-67)

3.5 Freedom and agency

For Merleau-Ponty, temporality is a constituting structure for an embodied agent.

The fusion of soul and body in the act, the sublimation of biological into personal existence, and of the natural into the cultural world is made both possible and precarious by the temporal structure of our experience. Every present grasps, by stages, through its horizon of immediate past and near future, the totality of possible time; thus does it overcome the dispersal of instants, and manage to endow our past itself with its definitive meaning, re-integrating into personal existence even that past which the stereotypes patterns of our organic behaviour seem to suggest as being at the origin of our volitional being.

(Merleau-Ponty, 1945, pp. 97-98)

Thus while arising from the spatio-temporal history of an individual's actions in particular situations, habits develop which enable them to act on the world. Habits are therefore the basis of individual's agency. While Merleau-Ponty did not use the term agency, he did utilise a Sartrean vocabulary for discussing 'freedom' and 'choice'.

The world is already constituted, but also never completely constituted; in the first place we are acted upon, in the second we are open to an infinite number of possibilities. But this analysis is still abstract, for we exist in both ways *at once*.

(Ibid, p. 527)

Merleau-Ponty's conception of choice, therefore, is that it cannot be absolute; habits root an individual in the world that makes choice possible. Agents have knowledge about their situation and their knowledge is integral to the successful accomplishment or 'doing' of that situation which links to the control component of flow and where there is a balance between challenge and skill:

[M]y habitual being in the world is at each moment equally precarious, and the complexes which I have allowed to develop over the years always remain equally soothing, and the free act can with no difficulty blow them sky-high.

(Ibid, p. 513)

The challenge of the action is enjoyable to the agent, as with the prospect of control. However, as Csikszentmihalyi states, this is only in retrospect:

He has no active awareness of control but is simply not worried by the possibility of lack of control. Later, in thinking back on the experience, he will usually conclude that, for the duration of the flow episode, his skills were adequate for meeting environmental demands; and this reflection might become an important component of a positive self-concept.

(Csikszentmihalyi, 1975, p. 44).

This links with Heidegger's notion of Dasein's Being as an issue for itself. Heidegger described three particular characteristics of Dasein; firstly, that it relates itself to its own Being, that "Dasein is in each case essentially its own possibility, it *can*, in its very Being, 'choose' itself" (Heidegger, 1927, p. 68). Secondly, that it has an implicit understanding of this relationship; "[i]n determining itself as an entity, Dasein always does so in the light of a possibility which it *is* itself and which, in its very Being, it somehow understands." (Ibid, p. 69). Finally, Heidegger explicates a third priority, "as providing the ontico-ontological condition for the possibility of any ontologies" (Ibid, p. 34), thus defining the capacity for understanding the Being of all entities.

The idea that Being is an issue for itself is inherent within the characteristic loss of self-consciousness within the flow experience for which a conscious acknowledgement of the human relation to Being emerges stronger afterward.

The *self* emerges when consciousness comes into existence and becomes aware of itself as information about the body, subjective states, past memories, and the personal future. Mead... distinguishes between two aspects of the self, the knower (the 'I') and the known (the 'me'). In our terms, these two aspects of the self reflect (a) the sum of one's conscious processes and (b) the information about oneself that enters

awareness when one becomes the object of one's own attention. The self becomes organized around goals....

(Nakamura and Csikszentmihalyi cited in Snyder and Lopez, 2002, p. 91)

Heidegger then distinguishes between these two modes of existence distinct from one another “[a]s modes of Being, *authenticity* and *inauthenticity* (these expressions have been chosen terminologically in a strict sense) are both grounded in the fact that any Dasein whatsoever is characterized by mineness.” (Heidegger, 1927, p. 68). The inauthentic reflects the everydayness of Being, a mode in which an individual exists most of the time and refers to the way in which the individual is not always caught up in things, when they are no different than others. Authenticity on the other hand is when Being is revealed in a first person way, when the individual is most ‘at home’ with their self, and is characterised by a ‘moment of vision’ in which we have the “authentic potentiality-for-Being-a-whole” (Ibid, p. 277).

[R]esoluteness is our name for authentic existence, the existence of the Dasein in which the Dasein is itself in and from its own most peculiar possibility, a possibility that has been seized on and chosen by the Dasein.

(Heidegger, 1954a, p. 287)

Since Being is an issue for Dasein, only a life in which a conscious acknowledgement of the human relation to Being, such as in authentic experiences, can be understood as a ‘good’ life. Thus a further shared characteristic of Heidegger’s *Dasein* and Csikszentmihalyi’s *Flow* can be seen in their quest for moments of ‘authenticity’ and references the final characteristic of flow, that of the Autotelic experience, as an intrinsically rewarding experience:

The autotelic experience, or flow, lifts the course of life to a different level. Alienation gives way to involvement, enjoyment replaces boredom, helplessness turns into a feeling of control, and psychic energy works to reinforce the sense of self, instead of being lost in the service of external goals. When experience is intrinsically rewarding life is justified in the present, instead of being held hostage to a hypothetical future gain.

(Csikszentmihalyi, 1990, p. 69).

In conclusion, an individual's experience of flow is only available through their embodied intention towards the world. An individual's sense of both the world and embodied being is revealed through their bodily spatiality, an inherently dynamic and expressive condition. The embodied being is then both constituted by, and freed from, its habitual body through the ever ecstatic quality of time. This experience of freedom however, is a conscious intention to act on the world and reveals an individual's potential for being in that world as an issue for itself. It is thus only in those moments when an individual's embodied being is brought into question and revealed through action that they experience this 'potential-to-be-whole' or 'flow' phenomenon; a fundamentally positive experience.

Chapter Four: Flow in the Dancing Body

This chapter discusses the notable theorist and dance practitioner Rudolf Laban's contribution to dance theory, particularly in relation to his studies of movement analysis. The chapter begins by addressing his shared philosophical connections with phenomenologist Merleau-Ponty before expanding on Laban's own theories of the body. Laban developed two fields of research in relation to movement: eukinetics, the study of effort and choreutics the study of shape. Both will be discussed in greater detail and then expanded on with an analysis of Warren Lamb's work, a key proponent of Laban's work. Lamb developed his own complementary theory of analysis through practice, and developed his Movement Pattern Analysis (MPA). MPA is a tool for analysis of the movement of others in order to understand their movement potential as well as motivational potential with regard to decision-making. The final part of this chapter discusses the links between flow as defined in the previous chapter and flow within the theory of movement analysis as defined by Rudolf Laban and Warren Lamb.

4.1 Shared connections

In Chapter One, the modernist connections between Merleau-Ponty and Laban were discussed. In this chapter, further exegesis of the connections between Merleau-Ponty and Laban will be developed in relation to Csikszentmihalyi's theory of flow. The shared philosophical connections

between Merleau-Ponty and Laban, though widely referenced in many dance texts, often remain implicit. This section draws on, dance theorist Vera Maletic's, *Body – space – expression* (1987). Maletic provides a detailed analysis of the main phenomenological tenets that underlie Laban's ideas and concepts.

Maletic begins by drawing on Merleau-Ponty and Laban's shared interest in the body, in which they both develop theories out of lived experience.

Laban states that:

Each phase of movement, every small transference of weight, every single gesture of any part of the body reveals some feature of our inner life. Each movement originates from an inner excitement of the nerves, caused either by an immediate sense impression, or by a complicated chain of formerly experienced sense impressions stored in the memory. This excitement results in the voluntary or involuntary inner effort or impulse to move.

(1971, p. 22)

While Laban's language does not consistently reflect mind-body inseparability, by referring to the 'inner' and subsequently 'outer' lives of a being, such references can be reconciled through a conscious phenomenological stance.

Laban's method reflects that of the phenomenologists, in drawing on a descriptive analysis of the lived body. Indeed, Laban's notation system is one of the most in-depth systems for describing human movement and it has been used in many contexts, most notably for the notation of dance works, but it has also been adapted in the analysis of human movement in work places. Laban's descriptions were based on elucidating the structures of experience rather than providing an empirical study:

Let us now proceed with studying the factors of bodily actions as distinct from those of bodily functions or mechanics. It is hoped that through such an approach, appreciation and understanding of the significance of human movement can be increased and deepened.

(Ibid, p. 28)

Laban's analysis of movement consists of a description of profiles and perspectives in much the same way that phenomenological analysis does. Merleau-Ponty in *Phenomenology of Perception* provides an example of the phenomenological method through an analysis of the perception of objects:

The object-horizon structure, or the perspective, is no obstacle to me when I want to see the object: for just as it is the means whereby objects are distinguished from each other, it is also the means whereby they are disclosed....In other words: to look at an object is to inhabit it, and from this habitation to grasp all things in terms of the aspect which they present to it.

(Merleau-Ponty, 1945, p. 79)

An analysis of the object, Merleau-Ponty suggests, can only be obtained through an individual's embodied relation to it, and their ability to take up the various perspectives available. Laban further suggests that:

One perceives this whole interwoven complex [of man and the world] as I, as a thing, as a phenomenon. The stirring or excitation of the I is timed by the densities which we experience as matter, body, the touchable. The unifying basis is the eternally changing power of gesture.

(Laban cited in Maletic, 1987, p. 191)

Here, Laban reiterates the importance of the body and movement in experiencing the world, but much more than that, Laban sees the body as expressive: "The body is our instrument of expression through movement." (Laban, 1988 p. 37). Here, there are parallels with Merleau-Ponty's understanding of the body both in spontaneous action and in symbolic gestures:

[T]he body is essentially an expressive space... [b]ut our body is not merely one expressive space among the rest... [t]he body is our general medium for having a world. Sometimes it is restricted to the actions necessary for the conservation of life, and accordingly it posits around us a biological world; at other times, elaborating upon these primary actions and moving from their literal to a figurative meaning, it manifests through them a core of significance: this is true of motor habits such as dancing.

(Merleau-Ponty, 1945, p. 169)

Drawing again on Merleau-Ponty's definition of the habit body and its propensity for action, it is possible to find links to Laban's view of habit as a basic indication of character and temperament. Habit for Laban was also much more than a static and passive tendency, and instead it offered the possibility of greater insight into an individual's own capacity for action and he states that:

It is the task of an artist in creating a fine and lucid characterisation not only to bring out typical movement habits, but also the latent capacities from which a definite development of personality can originate. The artist must realise that his own movement make-up is the ground on which he has to build. The control and development of his personal movement habits will provide him with the key to the mystery of the significance of movement.

(Laban, 1971, p. 98)

Laban and Merleau-Ponty shared further insights in relation to the condition of the habit body. One of Laban's key areas of research addresses effort, which will be explored below in more detail. He believed that, "[e]very human movement is indissolubly linked with effort, which is, indeed its origin and inner aspect." (Laban cited in Maletic, 1987, p. 24). In turn, this can be linked to Merleau-Ponty's habit body:

If habit is neither a form of knowledge nor an involuntary action, what then is it? It is knowledge in the hands, which is forthcoming only when bodily effort is made, and cannot be formulated in detachment from that effort.

(Merleau-Ponty, 1945, p. 166)

The synthesis of both space and time is key to Laban's movement analysis in terms of effort and action. For Laban, "space and time structures, as well as time and energy phenomena, are for the dancer concrete unities, which are constantly renewed through the power of gesture." (Laban cited in Maletic, 1987, pp. 191-192). The temporal structure of movement is constituted in space.

4.2 Eukinetics

Eukinetics is the study of effort; it is the study Laban spent most of his later career developing, and is also the most widely applied area of his

research. As mentioned above, for Laban the eukinetic quality of an individual's movement is indicative of their underlying unconscious personality. For Laban, effort referred to "[t]he sequence of Inner Attitudes and Externalised Drives which activate an Action." (cited in McCaw, 2011, p. 352). Effort was perceived to be something both physical and mental and deployed in the pursuit of a particular task. Laban sought to develop a method for describing and analysing an individual's effort qualities which he identified as four basic qualities: space; weight; time; and flow.

For Laban, each of the four qualities had a scale moving between two polarities. Space refers to the total space of an individual's kinesphere, and space effort can therefore be considered the quality of movement an individual uses to explore that space and can be described as either a *direct* or *indirect* quality. Weight, addresses the type of pressure put into individual's movement, and can either be described as a *light* weight quality or a *strong* weight quality. Time is the pacing of the movement and goes between a *sustained* pacing to a *quick* pacing. Laban's final effort quality, flow, addresses the dynamic quality of the movement moving from *free* flow to *bound* flow (Laban, 1988, p. 21).

Flow in this narrow context, appears to have little resemblance to the flow as defined by Csikszentmihalyi. However, flow for Laban retains a different association to those of the other effort qualities, and consequently a more complex definition. Laban developed eight basic effort actions composed of a combination of the space, weight and time effort qualities neglecting the quality of flow, as detailed in the table below (Figure 2). The eight basic effort actions are punch, slash, clap, flick, press, wring, glide and float. These are described by Laban as being built up on two main mental attitudes: function and sensation. Laban considered the eight effort actions as like eight notes of music which may be composed in numerous ways. For Laban, what was interesting in terms of movement analysis was the individual composition of these actions which he felt were expressive of an individual's personality.

Effort Actions	Space	Weight	Time
Punch	Direct	Strong	Quick
Slash	Indirect	Strong	Quick
Dab	Direct	Light	Quick
Flick	Indirect	Light	Quick
Press	Direct	Strong	Sustained
Wring	Indirect	Strong	Sustained
Glide	Direct	Light	Sustained
Float	Indirect	Light	Sustained

Figure 2: Eight basic effort qualities constructed from Laban (1988)

Laban then replaces one of the three other effort qualities with the flow quality to describe what he referred to as Action Drives. When flow with either bound or free quality replaces the weight quality, the drive becomes 'vision-like.' When flow replaces time it becomes 'spell-like,' and when flow replaces space it becomes a 'passion drive.' For Laban, Vision Drive was of the sensation of weightlessness, other worldly and non-physical. The Spell Drive encouraged a timeless, trance-like, hypnotic state and the Passion Drive reflected a spaceless absence of focus with no logical reason. These Action Drives represent individual psychological types for Laban (Laban, 1988).

Flow for Laban "plays an important part in all movement expression, as through its inward and outward streaming it establishes relationship and communication." (Laban, 1971, p. 83). In his work titled *Modern educational dance* (1975a), Laban describes the importance of the awareness of flow for the dancer teacher:

In watching a child we see his movements change from one effort to another, sometimes gradually in a harmonious way, sometimes abruptly and with no apparent connection with the previous movement. These changes, or mutations, are important, as they indicate the presence or absence of flow from one action, or state of mind, to the next....

It cannot be stressed too strongly that the movements the child experiences have a marked reaction on his mind, so that

varying emotions can be induced through his actions, the intensity of the emotion varying with the intensity of the action.
(Laban, 1975a, pp. 102-103)

He suggests that in observing abrupt movement, the child should be “guided in such a way that he learns to make use of harmonious transitions from one effort to another.” (Ibid, p. 102). Ultimately, he argues that teachers, in learning to understand the effort qualities, “will then be better equipped to educate children to become happy in themselves and in their relationship with others...” (Ibid, p. 103). In ‘The harmony of movement’ cited in McCaw’s *The Laban sourcebook* (2011, pp. 320-331), Laban also refers to ‘harmony’ in the context flow:

When meeting a person who in his whole behaviour and actions has the capacity to balance the opposites, we may be inclined to say that he is really harmonious. How will this be shown in his movement, not only as a whole but also in details? First one should be clear as to what the opposites are for which we have to look....These two characteristics are very well known to the student of movement as ‘free flow’ and bound ‘flow’.
(Laban in McCaw, 2011, p. 323)

It is this reference to happiness and harmony which enables a connection to Csikszentmihalyi’s flow, and can be explored further in relation to Laban’s choreutics.

4.3 Choreutics

Alongside Laban’s eukinetic research, Laban developed another area of research in shape called choreutics. Choreutics deals with the sculptural qualities of movement. Laban’s successor Warren Lamb (who will be discussed in more detail below) explored choreutics using an analogy of the vapour trails from an aeroplane.

[W]e need to put ourselves in a position similar to that of a commentator reporting on an aircraft giving a stunt display. He would report that the aircraft was looping the loop, diving, gaining altitude, veering to the right or left, and so on... if the aeroplane’s engine was leaving a vapour trail, we should see the shapes transcribed in the sky.
(Lamb, 1965, pp. 16-17)

Laban catalogued the different ways the body can move and explained these in terms of three dimensional planes; horizontal, vertical and sagittal. As with the effort qualities, the three dimensions above also exist on a continuum between two opposites. The horizontal plane can move from side to side, and can be best thought about as if a table were to cut through the body at the stomach, enabling an individual to reach out to the sides of the table to their left and right. The vertical plane moves between the extreme upper to lower limits of the body and can be thought of as a door frame in which the body moves up to the top and down to the floor. The final sagittal plane can be thought of as a wheel plane, and cuts through the body front to back, this creates movement which moves forwards and backwards.

Laban became interested in polyhedral forms in order to develop a scale of movement pathways. Laban's scales were based on the icosahedron, a form of twenty equilateral triangles, and he began teaching these scales in 1946 to his students of the Art of Movement Studio in England (Davies, 2001). As scales enlarge spatial awareness and at the same time balance the body spatially they were performed as a discipline but one that explored the harmony of space. Laban's scales followed regular sequential patterns, always forming a complete ring of movement and constructed with three dimensional symmetry (Davies, 2001).

Laban's choreutics draws on the golden ratio, as defined in the arts, and sciences as well as with respect to Fibonacci's mathematical sequence. It is the idea that perception naturally compares height with width in any given ratio and has been used throughout history to produce attractive form and strength. Laban's scales were informed by his interests in architecture:

Movement is, so to speak, living architecture – living in the sense of changing emplacements as well as changing cohesion. This architecture is created by human movements and is made up of pathways tracing shapes in space, and these we may call 'trace-forms'. A building can hold together only if its parts have definite proportions which provide a certain balance

in the material of which it is constructed.... The living building of trace-forms which a moving body creates is bound to certain spatial relationships. Such relationships exist between the single parts of the sequence. Without a natural order within the sequence, movement becomes unreal and dream like.

(Laban cited in Foster, 1977, p. 65)

Laban's research in choreutics reflected his interest in harmony, and the balancing of two opposites. In developing his scales, he describes a harmonious combination of directions balancing between stable and labile, and in particular, as present in his diagonal scale.

If we present these relationships in a cube we find that both the labile and the stable characteristics are provoked by *one* diagonal other than that of the inclination, and that the pulling and pushing of the two directions of an inclination are caused by that *one* diagonal, thus establishing an interrelationship between the two diagonals.

(Laban, 1966, p. 207)

In his classes, Laban often taught the diagonal scale with 'affinities' of effort actions (Maletic, 1987), though Laban considered the two areas of his research; eukinetics and choreutics, separately.

4.4 Lamb's developments

Warren Lamb, as briefly mentioned earlier, was a student of Laban's at the Art of Movement Studio in 1945. He showed particular ability with regards to the observation and analysis of movement that Laban had developed. He began to work very closely with Laban within industry and working in factories and offices to assess an individual's way of working, with the idea that some people were better suited to particular jobs. These perceptions were originally based on Laban's observations and his capacity as a 'healer' in "his penetrating recognition of the essence of an individual's personality." (Davies, 2001, 37). Laban's work in industry was devised using an analysis of the movement required for a specific task and an analysis of the workers performing said task, "[s]pecial exercises were then devised to strengthen their bodies for the operations, and more fluent and rhythmic ways of performing the tasks were suggested." (Ibid, p. 40).

After Laban's death in 1958, Lamb developed some of Laban's ideas further, in particular, in relation to flow and the combining of Laban's eukinetics and choreutics.

Lamb also developed some of the terminology used by Laban, as it became clear to him that while Laban supported an analysis of movement in flux his language supported a more positional approach. With regards to the effort qualities, Lamb found it easier when talking to clients to describe the qualities as 'focus' instead of 'space', and 'pressure' instead of 'weight', alongside the original qualities of 'time' and 'flow'. He then described the polarities of the effort in terms of process; indirecting/directing, decreasing/increasing, decelerating/accelerating, freeing/binding. Within shape, he redefined the polarities as spreading/enclosing, rising/descending and advancing/retiring. Finally, "[h]e added the terms Assertion to Effort and Perspective to Shape because they are synonymous and [he] found they were more readily understood in clarifying the decision-making concept, by the non-movement people with whom [he has] worked." (Lamb, 2012, p. 32). For the purposes of this thesis, it is Lamb's terms which will be referred to from this point onwards.

Lamb developed the concept of flow in shape as well as flow in effort, moving from growing to shrinking and freeing to binding, respectively. For Lamb, although these qualities of flow are considered as equal within effort and shape observation, he argued for the transcendence of flow in relation to the other effort and shape qualities and stated that "Flow links all other components of movement to give them balance, flexibility and grace." (Ibid, p. 46). For Lamb, flow was also a characteristic linked to child development. In his work with child psychoanalyst Dr. Judith Kestenberg (Kestenberg, 1978; Lewis and Lowman, 1990), it was suggested that an individual is born with mainly flow qualities and it is only as a child develops through to adulthood that they develop effort and shape qualities. In developing these qualities, however, it is also

suggested that the individual may lose some their 'child-like' flow qualities, discussed in greater detail below.

Lamb drew on all these concepts of effort, shape and flow to develop what is now called Movement Pattern Analysis (MPA) within the field of management consulting (Lamb, 2012). He developed a system for observing the movement of others which would indicate an individual's preferred movement patterns, which in turn relates to that individual's preferred behaviour when going through decision-making processes. Though MPA is almost solely employed in business, Lamb is an advocate of a wider application of MPA within education and in the study of movement which he sought to develop beyond the confines of dance, sport and other forms of non-verbal communication.

I have been a knight in shining armour all my career crusading for recognition of Movement Analysis in the hope that it will become recognised as a valid discipline in its own right.

(Lamb, 2003a, p. 4)

Lamb's Movement Pattern Analysis begins with an analysis of posture and gesture. Lamb found it necessary to identify which part or parts of the body movement was being observed in. This further allowed him to define two categories of movement, posture and gesture. Posture indicates a whole body movement, in which "all parts of body involved in movement – each part observed actually to move and not merely to respond to movement of other parts – associated with postural adjustment." (Lamb, 1965, p. 15). Gesture relates to movement confined to part of the body, "applicable even though there may be locomotion of the whole body if some parts are carried by other parts – associated with gesture." (Ibid, p. 15) Lamb also addressed movement where gesture merges into a movement of the body as a whole, or where postural movement supports and is consistent with a gestural movement. This movement he termed posture-gesture merged or integrated movement. It was in these movements that Lamb argued an expressive relationship could be denoted:

The manner of the merger of posture and gesture in a person's movement is essential to the DNA of their behaviour. It is

unique to the individual, it is what distinguishes one person from another. Furthermore, analysis of it reveals the *preferred nature of their decision making*. In using their posture-gesture merger the individual feels comfortable and at ease.

(Lamb, 2012, p. 21, my italics)

It was therefore only this posture-gesture merged movement which became the focus of the MPA profile. (Figure 3, p. 83). The MPA profile is normally compiled after a two hour interview with an MPA consultant. Within these interviews notations and sketches will be made of the movement. In relation to the notation of effort and shape qualities, they can be tracked using diagrams which extend from one moving polarity to the other, these are then traced using a system of linking lines to indicate movement between the extremities, (Figure 4, p. 84). When this is completed for all effort and shape qualities, the collection of lines can be reduced to just a single line (Figure 5, p. 84) indicating the predominant range of qualities. This analysis is conducted for both postural and gestural movement.

Once the initial analysis of effort and shape is completed, the simple line diagrams are compared between posture and gesture. The following diagram (Figure 6, p. 85) indicates the extent to which posture and gesture ranges overlap. There is evidence to show that the way in which these overlap is consistent for each individual over separate occasions when behaviour has been different. These can then be reduced to a further set of lines indicating the range only. Figure 7 (p. 85) indicates the range of posture-gesture merged movement, and the arrows indicate the realm of posture beyond the range of over-lapping. This becomes an important aspect with regard to training for the individual, as sequences are developed which encompass the end of the spectrum where their postural range diminishes.

JOHN SMITH		% of total activity	Extent of interaction activity	
Assertion	Perspective		Sharing	Private
Investigating ATTENTION Exploring		27	80	50
		23		
Determining INTENTION Evaluating		14	70	70
		20		
Timing COMMITMENT Anticipating		6	20	80
		10		
Assertion/Perspective ratio		47/53		
Dynamism on a ten-point scale		6		
Adaptability		High		
Identifying		Medium		

Figure 3: Tabular Presentation of an Action Profile (Davies, 2001)

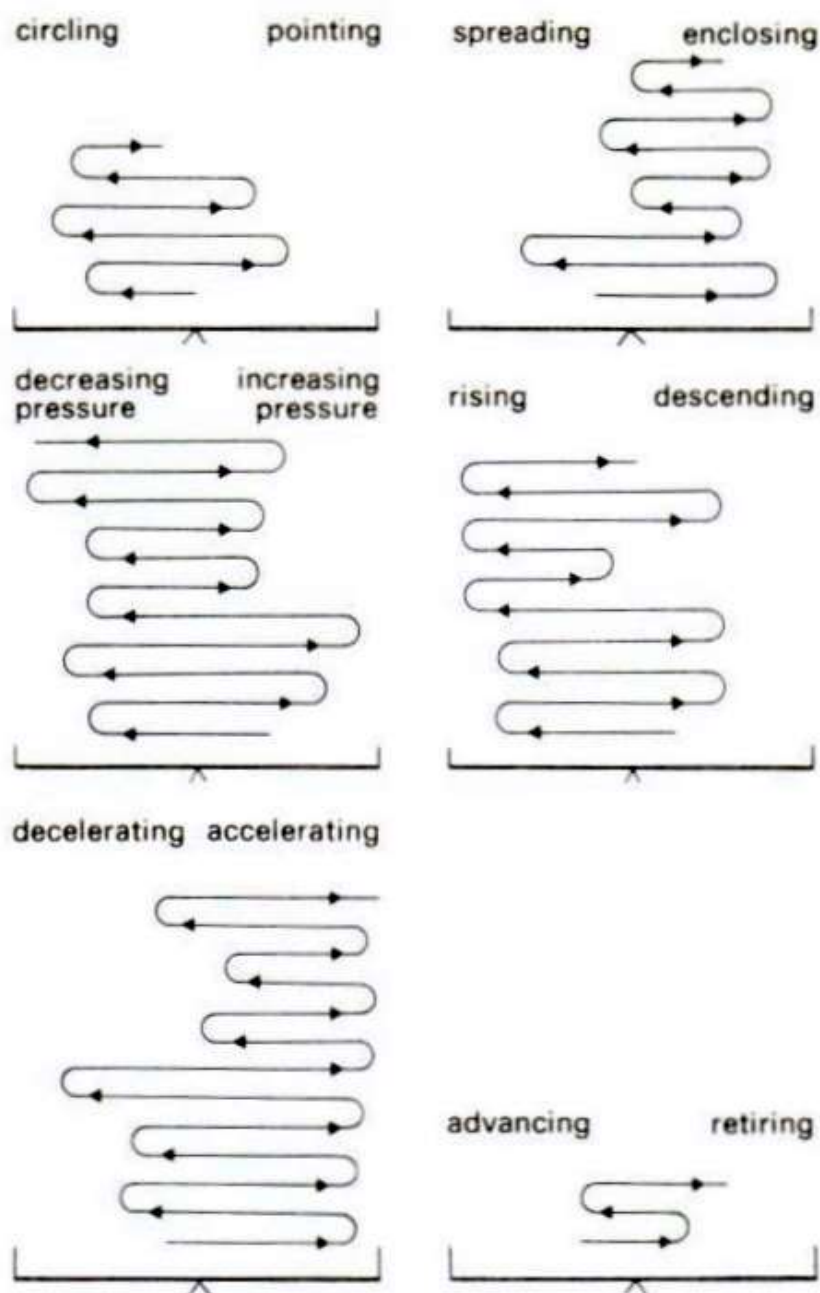


Figure 4: Effort and Shape Ranges (Lamb, 1979)

Effort		Shape	
circling	directing	spreading	enclosing
decreasing pressure	increasing pressure	rising	descending
decelerating	accelerating	advancing	retiring

Figure 5: Effort and Shape Reduced Range (Lamb, 1979)

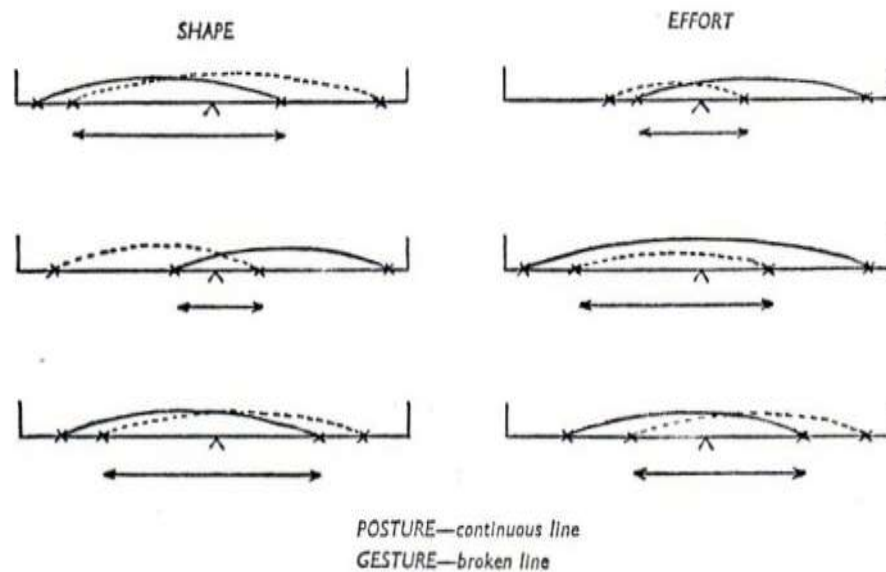


Figure 6: Posture/Gesture Overlap (Lamb, 1965)

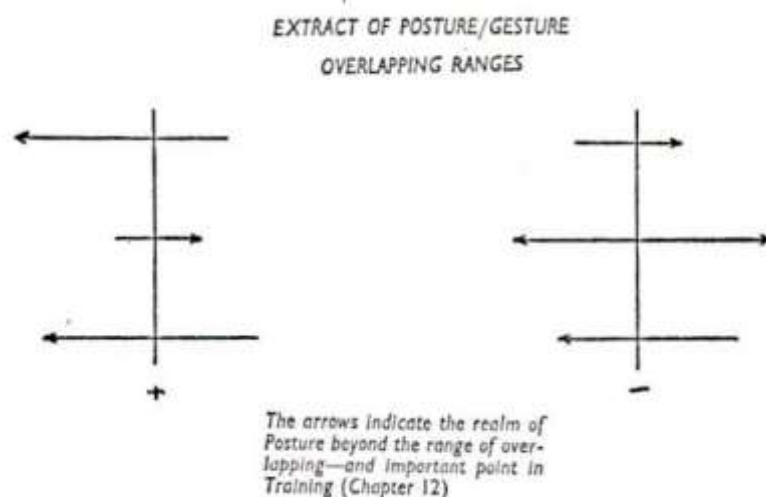


Figure 7: Extract of Posture/Gesture Overlapping Ranges (Lamb, 1965)

These new range diagrams are used to indicate an individual's 'motivation to act', a framework for the description of managerial behaviour (Davies, 2001). Lamb felt that the six effort/shape qualities were connected to one another in three stages of decision-making. The three stages consist of: stage one; *attention*, relating focus with the horizontal plane; stage two, *intention*, relating pressure with the vertical plane; and stage three, *commitment*, relating time with the sagittal plane. The longer the lines in any one part of the action-motivation analysis, the greater the preference the individual has for the corresponding stage of decision-making.

Stage one, the attention stage, addresses how a situation must be given attention first and describes the different ways in which an individual may attend to the situation. Lamb makes further definitions of attention in relation to effort (investigation) and shape (exploring). If an individual were to have an effort range that sat nearer the directing end of the scale it could be said that they would attend to the situation by probing for information and making distinctions. If they sat in the indirecting end they would begin by making connections and grouping data. In terms of shape, if they were on the enclosing end of the spectrum an individual may begin by gathering possibilities from different angles and encompassing diverse possibilities. Whereas someone on the spreading end of the spectrum may generate alternatives and expand the scope for action (Davies, 2001).

The second stage which addressed intention can be divided into determining in the effort range and evaluating in the shape range. Intention is related with what an individual's feelings are towards the information gathered in the first stage. If the individual showed predominance in this range it might be with regard to an increasing pressure, in which they would proceed to build a firm case and either apply or resist pressure. With regards to a preference for decreasing pressure the individual may proceed gently and persistently, bending without giving way. Alternatively, within the shaping qualities, an individual may show preference towards the descending scale in which they may proceed by establishing the relevant issues and rank those issues in order of importance. A rising preference may result in the comparing of options and weighing of pro's and con's (Davies, 2001).

The final stage, addressing commitment, refers to the way in which an individual takes action given the situation. Lamb related effort in this stage to timing and shape to anticipating. Within the effort ranges, having a preference for accelerating may mean an individual will speed up the pace of the activity and seize opportunities or, given a decelerating preference, they may take time to choose when to allow for developments and focus

on choosing the right time to act. Within the shape range, an individual with a preference for retreating may proceed by planning the stages of action and measuring progress. Having a preference for advancing might enable the individual to set goals and foresee outcomes, implications and trends. It is important to note, however, that each individual will have a varying degree of preference and predominance, and defining people as 'types' has no real benefit.

The next section of the MPA profile addresses an individual's preference in regards to interaction and it profiles their personal 'interaction-motivation.' An individual's interaction-motivation profile is also divided into three sections which reflect an individual's preferences towards communicating, presenting and operating which is matched to the three action stages. The profile examines an individual's preference towards interaction in terms of their ability to share and work as a team, or work on their own with a need for privacy. Lamb argued an individual's ability to interact and share is related to their effort/shape affinity, detailed below.

Effort/shape affinity was first recognised by Laban in his identification of 'natural' movement and was also evident in his diagonal scale addressing space harmony. It is Lamb, however, who defined these connections and linked them to the three types of interactive environments they create; communication, presentation and operation. In the first stage; communication, the affinities exist between the directing effort of focus and the enclosing perspective of horizontal shaping, as well as the indirecting effort quality and the spreading shape quality. This affinity thus reflects "a willingness to contribute ideas and information and a receptiveness to others' suggestions, making colleagues feel valued." (Davies, 2001, p. 112). Disaffinity in this stage; directing/spreading and indirecting/enclosing, reflects independence in researching.

Within the second stage, presentation, affinities exist between increasing pressure and descending shape and decreasing pressure and rising shape. For example, it is more 'natural' to press onto the floor than press

onto the ceiling. Affinity in this stage reflects someone who “will involve colleagues in his/her pursuit of information and try to influence them as to priorities. Will be open but persuasive.” (Ibid, p. 112). Someone, however, showing a disaffinity in this stage, increasing/rising and decreasing/descending, would be more inclined to work alone and perhaps be reluctant to change their stance.

The final stage, operation, sees affinities between accelerating in the time effort and retiring in the sagittal shaping, as well as decelerating effort with advancing shape. Lamb describes a crouching athlete in a retiring shape ready for a quick start who then begins to decelerate on straightening out. Affinity in this stage suggests a person “very concerned with timing and objectives, and will try to instil the same concern in colleagues. May be more concerned with the speed of the task than how it is done. Can create a lovely working environment but can also put subordinates under stress.” (Ibid, p. 113). Affinity provides a ‘come on’ or ‘let’s get ready’ message, whereas disaffinity, that is accelerating/advancing and decelerating/retiring, suggest a ‘count me out’ attitude and may make colleagues of an individual with these attributes feel as if they may go behind their backs.

4.5 Flow and Movement Pattern Analysis

This whole process of Movement Pattern Analysis directed at posture-gesture merged movement reveals an individual’s preferred ways of moving, but more than that it also attempts to define their particular motivation through the decision-making process. This can therefore be seen in relation to the theory of flow developed in the previous chapter, in that in both flow research and MPA, there is an interest in optimal experience, and recognising behaviours which facilitate this experience. With regards to Csikszentmihalyi’s research, this concern for optimal experience is for the individual and in relation to everyday life. However, with regards to Lamb’s work, the concern is largely for the business or company in relation to worker efficiency.

There is, however, another connection in regards to the agency of the individual; in both flow as defined by Csikszentmihalyi and MPA, the process of achieving optimal experience enables the individual to act in the world as an effective agent. Where flow describes the sensations of optimal experience, MPA describes an individual's preferred patterns of movement in order to achieve optimal experience. It could therefore be suggested that flow, in relation to Laban and Lamb, signifies the physical characteristics, while flow in relation to Csikszentmihalyi describes the psychological characteristics, of optimal experience for an individual involved in agentic action in the world.

Both Csikszentmihalyi's flow and Laban and Lamb's MPA illustrate the importance of continuity. In Csikszentmihalyi's flow activities, this continuity is experienced through a smooth flowing consciousness and relational timing. In MPA, continuity is described through the process of posture-gesture merging:

The merging between Posture and Gesture processes, to qualify as a merging within one definition, has to be consistent in the Shape and Effort process. For example, if the hand begins a process of increasing pressure, a merging into Posture can only happen if the whole body consistently "backs up" the hand action by means of a similar increase in pressure."

(Lamb, 1971, pp. 32-33)

Continuity exists when posture consistently merges into gesture and vice versa.

There is also a link regarding relaxation; while Csikszentmihalyi's flow may involve a challenging activity, when an individual's skill is matched in just the right proportions, that moment of flow provides a relaxing, easy and accomplished feeling. Within MPA, relaxation facilitates posture-gesture merging. Lamb discusses the observation of two people doing a physically demanding task; one relaxed and one tense:

1. The relaxed person has succeeded in merging most of his Gesture striving and strainings into Posture adjustments, and the tense person has not.
2. The relaxed person is able to keep up a variety of postural adjustment while doing the task, whereas the tense person remains more or less fixed.

(Ibid, pp. 37-38)

Relaxation in this sense does not mean lack of activity but a loss of rigidity and incorporation of whole body.

In the previous chapter it was argued that habit enables automatic movement and facilitates action, rather than drawing on the mechanistic explanation of habit. In MPA, Lamb explains that relaxation in a task and posture-gesture merged movement can also overcome this mechanistic habit when performing repetitive tasks:

Relaxation in performance, as distinct from the relaxation achieved by stopping a task and having a rest, invariably needs the overcoming of any temptation towards postural sameness and the introduction of compensatory Posture adjustment consistent with the principle of Shape/Effort matching.

(Ibid, p. 39)

He goes on to describe the repetitive nature of housework and how relaxed movement incorporating postural variation creates ease in work.

Other links between Csikszentmihalyi's flow and MPA exist in relation to Lamb's theories of flow, relating to Judith Kestenberg's research, and the Autotelic personality within Csikszentmihalyi's research. Within Lamb's Movement Pattern Analysis, flow is addressed in relation to the final row of the Action Profile; identifying (as in Figure 3, p. 83). Within the decision-making process identifying indicates an individual's willingness to wholly participate in the activity and, as discussed earlier, is dependent on their experience as a child in being able to retain flow qualities in both effort and shape. This will be discussed in more detail in regards to Csikszentmihalyi's research on the Autotelic personality, which addresses an individual's capacity to experience flow, despite engagement in an essentially Autotelic activity.

Within MPA, it is suggested that flow (of effort and shape) diminishes during childhood growth and that parents, teachers and friends all impact on the final ratio of flow retention to effort/shape gain indicating an interplay of environmental factors with innate tendency or disposition. Lamb and Kestenberg argue that the early years are critically important in the formation of personality and that the results are demonstrated in an individual's physical behaviour. This is mirrored to some degree in Csikszentmihalyi's research on the Autotelic personality. He believes that it is likely that there are ways in which parents behave with children which will predispose them to find enjoyment either with ease or with difficulty, and that "[e]arly childhood influences are also very likely factors in determining whether a person will or will not easily experience flow." (Csikszentmihalyi, 1990, p. 88).

Both Csikszentmihalyi and Lamb and Kestenberg also argue that this experience when growing up could affect an individual's attention and personality. In Movement Pattern Analysis, people who showed low retention of flow were considered to be somewhat aloof, when combined with high effort/shape gain; or awkward, if combined with low effort/shape gain (Davies, 2001, Lamb, 2012). This reflects Csikszentmihalyi's research which suggests:

Attentional disorders and stimulus over inclusion prevent flow because psychic energy is too fluid and erratic. Excessive self-consciousness and self-centredness prevent it for the opposite reason: attention is too rigid and tight.

(Csikszentmihalyi, 1990, p. 85)

On the other hand high flow retention in MPA, and high autotelic tendency within Csikszentmihalyi's flow research both produce highly motivated individuals with an ability to experience flow more easily (Csikszentmihalyi, 1990; Lamb, 2012). Within MPA, those with high flow retention are considered to be confident, spontaneous and competent, when coupled with high effort/shape gain, or child-like, with low effort/shape gain. Csikszentmihalyi found those who experienced more intrinsic motivation in daily life were often able to overcome the bleakest of situations.

Eva Zeisel, the ceramic designer who was imprisoned in Moscow's Lubyanka prison for over a year by Stalin's police, kept her sanity by figuring out how she would make a bra out of materials at hand, playing chess against herself in her head, holding imaginary conversations in French, doing gymnastics, and memorizing poems she composed.

(Csikszentmihalyi, 1990, p. 91)

In conclusion, whilst Laban and Lamb's theory of flow cannot be directly mapped onto that of Csikszentmihalyi, there are some cross-overs. First, in Warren Lamb's development of Laban's theories in Movement Pattern Analysis and his work on posture-gesture merging; it is reasonable to suggest that posture-gesture merged movement is evidence in the body of moments of optimal experience in which the movement represents an individual's preferred patterns of movement and "is the result of sincere and not contrived behaviour." (Lamb, 2012). In contrast Csikszentmihalyi's flow is the psychological indication of these same experiences, in which "an activity involves the person completely with its demands for action, [that] "self-ish" considerations become irrelevant." (Csikszentmihalyi, 1975, p. 42).

Secondly, Laban and Lamb's work on flow (in effort and shape) can be seen in relation to the autotelic personality in relation to Csikszentmihalyi's work, and an individual's capacity for experiencing these moments of optimal performance. It could be considered that a new definition of the term flow could be constructed in which both physical and mental characteristics can be described in relation to the concept of optimal experience. This is further supported through the interdisciplinary application to phenomenology to both fields, reflecting the philosophical importance of the body. Both Laban and Merleau-Ponty developed theories which situated the body at the core of meaning making and felt that action was constituent of the self as expressive. Thus it is essential that the role of the body is considered in such experiences of flow.

Chapter Five: Facilitating Flow

The last two chapters developed a comprehensive understanding of flow as an embodied experience, available to an individual through their actions in the world. This chapter aims to address what kinds of activity might facilitate flow in dance. The research draws on a phase of workshops in order to inform the final method to be used for data collection. To begin, the chapter addresses Csikszentmihalyi's conditions for flow, drawing on his interest in French social theorist, Roger Callois (1913-1978) and his work on play (1958). After defining some of these key conditions, the chapter discusses those activities which are considered to facilitate such conditions. This will include improvisation in dance creation, drawing on the practices of *butoh* and yoga, for which a rationale is provided below.

Habit is then reconsidered in relation to flow and the above activities. While Merleau-Ponty saw habit as action enabling reflecting Csikszentmihalyi's flow characteristic of 'automatic' behaviour and Lamb's identification of it with regard to decision-making, it could be argued that both improvisation and dance practices often refer to habit negatively. Here, the chapter draws parallels with Merleau-Ponty's example of the phantom limb as an ultimately negative affect of habit, and aims to resolve the problem by addressing the Japanese term '*ma*' or 'in-between,' in connection with social anthropologist Victor Turner's 'liminoid.' The chapter then returns to the key movement practices in order to address the

principles drawn from Movement Pattern Analysis, before detailing the workshops used and the final method for the practice.

5.1 Conditions for flow

After identifying the key characteristics of flow, Csikszentmihalyi considered the various conditions for facilitating flow (1990). He began by addressing Roger Callois' classification of autotelic activities in his study of social structure. Callois described four types of activity within his research on play (1958): *agôn*, *alea*, mimicry and *ilinx*. *Agôn* refers to games of a competitive nature in which rules are applied to enable equality between the participants, as in sports and chess. *Alea* addresses games of chance, in which the participant attempts to exert control and 'beat the odds.' In this type of play risk is a high factor. Mimicry, however, refers to those types of activities which rely on pretence and fantasy, such as in theatre, where actors take on the characteristics of another. The final activity, *ilinx*, refers to activities in which there is an altered state of consciousness induced by dangerous 'vertigo' producing activities such as rock climbing and intoxication.

Csikszentmihalyi, however, contended that these four types of activity need not be exclusive in flow. For example in competitive skiing, an individual is both in a state of *ilinx* and *agôn*. He also argued that while Callois' definitions were of importance, they did not adequately describe all the types of autotelic activity within flow. Csikszentmihalyi went on to develop five categories, which while similar, extended those of Callois: friendship and relaxation; risk and chance; problem solving; competition; and creativity. The first factor contained elements which Callois might describe as mimicry, such as, watching a movie, but were extended through their interpersonal connection. The second factor, risk and chance, combines Callois' *alea* and *ilinx* categories. Problem solving addresses goal oriented activities, and competition draws on Callois' *agôn* criteria. The final factor, creativity was considered to be a unique experience in comparison to the other categories (Csikszentmihalyi, 1975).

The five factors consisted of eighteen items and were considered by respondents of six different types of activity. Csikszentmihalyi had the respondents match the items depending on their likeness to their activity. See table (Figure 8). One of the six categories of activities included dance, although it is not clear what kind of dancers (social, ballet, contemporary etc.) Csikszentmihalyi interviewed. It is suggested by Csikszentmihalyi, however, that the highest three ranking items for the dancers were: 'designing or discovering something new,' in the creativity section; 'listening to good music,' in the friendship and relaxation section; and 'exploring a strange place,' in the problem solving section. Overall, the creativity section, of which there was only the one item, was ranked highly in all activities except basketball. (Csikszentmihalyi, 1975).

Factors	Rock Climbers N = 30	Composers N = 22	Dancers N = 27	Male Chess N = 30	Female Chess N = 22	Basketball N = 40
<i>1. Friendship and Relaxation</i>						
Making love	6	6.5	4.5	16.5	17.5	14
Being with good friend	3	9	4.5	9	14.5	8
Watching a good movie	15.5	5	9	12	17.5	6
Listening to good music	6	3	2	10	12.5	3
Reading an enjoyable book	8	8	6.5	5	12.5	15.5
<i>2. Risk and Chance</i>						
Swimming too far out on a dare	13	13.5	15	14	7	17.5
Exposing yourself to radiation to prove your theory	17	10	12	12	10	9.5
Driving too fast	10	16.5	12	12	10	6
Taking drugs	10	13.5	15	15	14.5	9.5
Playing a slot machine	18	18	15	18	16	17.5
Entering a burning house to save a child	13	11	12	16.5	10	4
<i>3. Problem Solving</i>						
Solving a mathematical problem	4	2	9	1.5	2	12
Assembling equipment	13	6.5	17	7.5	7	15.5
Exploring a strange place	1	4	3	4	4	12
Playing poker	15.5	13.5	18	6	5	12
<i>4. Competition</i>						
Running a race	6	16.5	9	7.5	7	2
Playing a competitive sport	10	13.5	6.5	1.5	3	1
<i>5. Creative</i>						
Designing or discovering something new	2	1	1	3	1	6

Figure 8: Ranking of Similarity of Experience Items Within Each Autotelic Activity (Based on Mean Rank Scores) (Csikszentmihalyi, 1975)

Considering these indications for dance, as well as the characteristics of flow discussed in the previous chapters, it is important to consider what types of dance or dance related activities support and facilitate flow in contemporary dance. The activities would need to be creative, problem solving and with an element of relaxation or interaction. They would need to involve some kind of challenge, some potential for control and clear goals and feedback. They would also need to enable an individual's preferred patterns of movement, according to Laban and Lamb.

5.2 Improvisation

Sandra Cerny Minton (2007), former director of dance at the University of Northern Colorado, defines the various stages of the creative process within dance in four parts; exploring and improvising movement, designing and shaping the dance, identifying choreographic form, and staging the performance. It is the first generative stage of creation looking at improvisation which is central to this research. Improvisation as a perceptual activity relies on the, “hyperawareness of the relation between immediate action and overall shape, between that which is about to take place or is taking place and that which has and will take place.” (Foster cited in Cooper Albright and Gere, 2003, p. 7).

Improvisation largely focuses on task based activity in order to foster creativity and invent original movement material. Within performance, improvisation has been inherent as a method for process since the Ancient Greek period; “All art forms have begun with improvisation, and the early narrative epics like *The Odyssey* and *The Iliad* began as improvised storytelling. Song and dance and early dramatic ritual took more formal shape after long periods of improvisation.” (Hodgson and Richards, 1977, p. 2). Improvisation, however, is a transdisciplinary concept which informs numerous fields: “[q]uestions about improvisation reside at the nebulous boundaries between sociology and psychology, between the study of collective action and individual agency.” (Sawyer, 2000, p. 185). Sawyer’s article addressed interactions between jazz, improvisational theatre and everyday social life and was published as part of a special edition of *Mind, Culture and Activity*, “with representatives of several disciplines commenting on improvisation.” (Ibid. p. 185).

In dance it was popularised in the 1960s by American Postmodern dancers who began to create wholly improvised performances. For example, the Judson Church collective (consisting of Steve Paxton, Yvonne Rainer, Trisha Brown, Anna Halprin, Nancy Stark-Smith and Simone Forti, among others) moved away from the codified Modernist

movement practices situated in form and expression, and began to question what dance was. Improvisation became foregrounded as a product for political reasons; practitioners created works that commented on practices of dancing and art making as a means of challenging hierarchy and establishing creative autonomy. Many were interested in blurring the line between artist and everyday person, and in that context improvisation became a tool for exploring self as artist.

However, for some, improvisation was much more than just a tool, for Steve Paxton “there was no longer a clear dividing line between his everyday life and his improvising.” (de Spain cited in Cooper Albright and Gere, 2003, p. 27). Paxton was the founding practitioner of Contact Improvisation, a form evolved from his interests in martial arts, improvisation and dance. Contact Improvisation has shifted away from an experimental dance phenomenon and towards a physical practice allied with a number of body and mind studies. Improvisation in this context requires one to think, move and create in the moment of performance, it is a, “form which lives and breathes in the moving flow of its creation, a flow experience as on going present and unbroken now.” (Sheets-Johnstone, 2011, p. 421).

Improvisation is often enabled through the use of tasks in order to stimulate movement responses. The tasks can be formed of many varying stimuli, for example, on a task based on the senses an individual may explore the different sensations of touch or use sound to illicit movement. Tasks can also explore the elements of movement; space, time energy and other movement qualities. Improvisation could be inspired by some kind of artefact or even a single movement. These can be explored internally, by relating to the internal structures, or externally, by exploring an external spatiality. In every instance the task is meant to inspire but not to set or conform, there is no right or wrong response as long as the individual engages in the task to explore its movement potential.

The above stimuli could further be explored through the use of imagery. Imagery is the use of images in the mind in order to alter the behaviour of the body, and relies on the implicit interaction of the mind and body. The development of imagery in dance is associated with Joan Skinner, Glena Batson, Martha Eddy and Bonnie Bainbridge Cohen (Franklin, 1996). Imagery in improvisation can enhance discoveries of new movement qualities and choreographic ideas. The use of imagery in dance requires total concentration as Zaphorah notes:

If my mind isn't quiet, I can't believe my experience. I'm so busy listening to and believing in my mental chatter (always tied to the past and future) that I am unable to focus on my present experience, let alone believe in it.

(cited in Franklin, 1996, p. 4)

One particular dance practice which utilises imagery is that of *butoh*, a Japanese art form developed by Kazuo Ohno and Tatsumi Hijikata. *Butoh* grew out of a rebellion against both codified Japanese performance traditions and the influences of Western dance forms in Japan following World War Two (Barbe, 2003); discussed in further detail later. *Butoh* often works in the area of the absurd, or the grotesque, looking at two images simultaneously: the dark with the light, the old with the young. Hijikata also developed *butoh-fu*, a form of *butoh* which explores streams of images moving the body through states of being or feeling; "it is not a form of madness, where one believes oneself to be a cat, or an old woman, but rather to find the architecture of a cat, and live in that form." (Barbe, 2003, 23). *Butoh* has influenced the on-going development of improvisation within current Western dance practices in its focus on the 'inner' representation of the image rather than external aesthetic (Fraleigh, 1999, p. 38).

All types of improvisation are characterised by a reflexive awareness and instantaneous responsiveness to the moment, and enhance bodily mindfulness. Improvisation is fundamentally creative, drawing on the primary condition of flow within dance (Csikszentmihalyi, 1975). Improvisation is both an articulation of mind and body, "Improvisation does

not, therefore, entail a silencing of the mind in order for the body “to speak.” Rather, improvisation pivots both mind and body into a new apprehension of relationalities.” (Foster cited in Cooper Albright and Gere, 2003, p. 7). Imagery in improvisation can aid in the reflexive, relational creation of mind and body by uniting and translating the different activities of consciousness.

Susan Leigh Foster describes this experience as a moving back and forth between the ‘known’ and the ‘unknown’. Where the known is considered an individual’s predisposition to certain movement patterns or habits, “it demands a reflexive awareness of the known becoming a stereotype.” (cited in Cooper Albright and Gere, 2003, p. 7). In this sense, the known and habit are considered challenges to improvisation. Improvisation requires the individual to generate an instant flow of movement, where it is considered they must avoid habitual movement patterns in order to invent original material. However, Foster acknowledges that “we could never accomplish this encounter with the unknown without engaging in the known.” (Ibid, p. 4).

5.3 Somatic practices

Improvisation within dance relies on many somatic principles. Somatics in this context being referred to as a portmanteau term for those practices which draw on the anti-dualist approaches to knowledge, addressing the mind and body holistically. Somatics comes from the Greek word for ‘soma’ meaning the body in its wholeness. Somatics, “involves ‘listening to the body’ and responding to these sensations by consciously altering movement habits and movement choices.” (Eddy, 2009, p. 9). It is a way of understanding the mind and body as an interconnected system; learning how they communicate is key to improved health and understanding.

Although only a recently defined area of practice, with new studies and journals proliferating in the last decade (Ibid, p. 6), somatic practices are an approach to bodily care and education which have developed largely

unconnected to one another for the past fifty years². The term somatics was introduced in the 1970s by Thomas Hanna (Ibid, p. 7), in an attempt to unify the processes under one rubric. A variety of skills and techniques are used within the myriad of somatic practices including qualities of touch, empathetic verbal exchange and complex movement experiences. The goal of somatic movement practices is to facilitate a student's own self-awareness and understanding of self through holistic and therapeutic methods.

Within the context of this study the practices of yoga and Eric Franklin's work in somatic imagery will be discussed. The particular characteristics of somatic practice which are most relevant to these practices are the attention to relaxation and release of holding patterns. Many somatic techniques begin by "quieting the mind-body 'chatter'" (IADMS, 2009, p. 2). They emphasise sensory awareness over motor action the *how* over the *what*, by addressing inner sensations and increased kinaesthetic awareness. Somatic practices are typified by the use of meditation or rest, with a higher rest-to-activity ratio; as in much physical recovery work. Rest is also a key component in motor programming, and within dance, somatics is used as a way of re-educating the body, focussing on process over product. This is indicative of a very recent shift in dance practice which embraces self-awareness, but also references the second condition for flow in dance: friendship and relaxation. It should be noted, however, that both yoga and Franklin's work are not indicative of all somatic practices and it is not within the scope of this thesis to provide a detailed exegesis of the field of somatics. See the footnote below for further references to such research.

² The International Somatic Movement Education and Therapy Association (ISMETA) aims to unite many of the different types of somatic practice by providing a professional scope of practice and facilitating training and education and regulation over the practices. The many training practices within ISMETA include; yoga (Devereaux, 1998; Kent, 1999; Pegrum, 2001), Authentic Movement (Adler, 2002; Johnson, 1987, 2007; Samuels, 2004; Weiss, 1999), Alexander Technique (Dimon, 1999; Jones, 1975), Feldenkrais, Bartenieff Fundamentals (Bartenieff, Davis and Paulay, 1970; Bartenieff and Lewis, 1980) and Body-Mind Centering (Bainbridge Cohen, 1993), and Shin-Somatics (Fraleigh, 2009) amongst others.

The Franklin Method consists of ‘basic movement images’ repeatedly practiced in order to facilitate an awareness that pervades the whole body. In his book *Dance imagery: for technique and performance*, Franklin describes an experience akin to flow which he aims to cultivate; “effortless motion, kinetic flow, physicality, total body awareness, wholeness, oneness, connectedness, inspiration, a feeling of beauty, fluid breath, luminosity, clarity, joy in motion, or total freedom.” (Franklin, 1996, p. 4). Franklin’s method not only aims to cultivate creativity in dance but also to more generally address habitual holding patterns and release tension.

This is also stressed in yoga practices where yogi practice physical exercises *asanas*, to provide gentle stretching that acts to lubricate the joints, muscles, ligaments, tendons, and other parts of the body. *Asanas* are considered to be “much more than physical exercises; they are a holistic practice that works on many different levels.” (Pegrum, 2001, p. 17). In recent years scientists have tested many of the claims of yoga, but concluded that “yoga showed much promise for treating anxiety and depression” (Broad, 2012, p. 100). Yoga utilises relaxation as a way of enabling peace of mind, “[t]he yogic scriptures state that pure relaxation is experienced when not only the body, but also the mind and spirit, are entirely relaxed.” (Pegrum, 2001, p. 30). *Asanas* are considered to promote relaxation of the muscles while meditative or visualization techniques are utilised in “imaging the body filled with divine bliss or nectar [for example], but there are many positive images that you can evoke.” (Ibid, p. 30).

In terms of habit, both yoga and the Franklin Method are seen as a way of releasing negative holding patterns and instigating and embodying new positive habits. Habit in this instance is often considered to be both a physical and mental state and these practices attempt simply to draw attention to these habitual patterns in order to facilitate engagement and action. Below, Franklin describes the difficulties with maintaining new positive habitual movement patterns:

For a correction to become part of your new way of moving, it needs to be incorporated into your body image. Your body image is your physical identity, the way you feel, visualize, and experience your body. Alignment, tension level, breath, and movement patterns are all part of your body image, of what feels natural or “at home” to you, even if from a biomechanical point of view your alignment is not ideal and is straining your musculature and joints. If, for example, you habitually tilt your head to the left when speaking to someone, this feels normal to you. If someone put your head in proper vertical alignment, you would feel strange, even though you would now be in a more efficient alignment. You might feel as though “this is not me” because your whole identity is connected to a certain posture. This poses a major problem in improving your movement and alignment. What is better from the point of view of alignment and movement efficiency often feels wrong.

(Franklin, 1996, p. 74)

5.4 Habit as both problem and problem solver

In both improvisation and dance practices, habit is often referred to as a negative; something to either avoid or correct. Even in Merleau-Ponty and Heidegger’s discussions of habit there were negative effects in the case of the phantom limb, and in inauthentic moments. While Heidegger makes it clear that “the inauthenticity of Dasein does not signify a “lesser” being or a “lower” degree of being” (1927, p. 43), he still implies that there is a stronger sense of self in the authentic existence. How then can this negative side of habit be reconciled with the positive, action enabling side of informing that flow state?

As discussed in Chapter Three, habit for Merleau-Ponty, despite informing the phantom limb experience, is still an example of an individual’s being in the world and taking action in that world. Merleau-Ponty explains that the subject with the phantom limb does not engage in deliberate action-making but rather through a habitual body. Merleau-Ponty distinguishes between two layers of the body, the habit body and the present body, thus re-affirming the temporal structure of the body and the individual’s experience of it in the world. Merleau-Ponty suggested that it was through repression of a past trauma in which the subject remains emotionally involved in a particular past experience to such a degree that it imposes

itself on the actual present. It is therefore only through the act of decision-making that an individual is able to be fully present, yet this act is founded on their habitual body. “By taking up a present, I draw together and transform my past, altering its significance, freeing and detaching myself from it.” (Merleau-Ponty, 1945, p. 528).

In practices such as The Franklin Method there is also a focus on re-educating the body in order to support self-regulation. However, it is only through an active engagement that an individual will experience change. It is not through the passive reception of a movement educator’s touch but the active and direct attention of the student through the entire learning process. Students must focus their attention and recognise their habitual movement patterns in interaction with their environment in order to develop improved perceptual movement integration.

The discomfort referred to earlier while re-educating the body can also be linked to the *butoh* concept of ‘*ma*’. *Ma* is a Japanese word which can roughly be translated as ‘interval’ and is often referred to as a negative space. It also has a temporal meaning thus representing space, time and space-time. *Ma* can be experienced as both a static and a dynamic state and is a “way of sensing the moment of movement.” (Isozaki cited in Pilgrim, 1995, p. 69). In *butoh*, Hijikata developed the term *ma-gusare* (rotting space) operating at the interstices of being and non-being in a dangerous territory of dark unknowing.

This concept of ‘*ma*’ can also be related to Victor Turner’s concepts of liminality and liminoid; “literally “being-on-a-threshold” means a state or process which is betwixt-and-between the normal, day-to-day...” (Turner, 1979, p. 465). Turner links the liminal to Csikszentmihalyi’s theory of flow through performance practices. He notes that liminality only takes place within highly structured societies. Turner then describes the liminoid as events or behaviours which are simply undertaken for pleasure. For Turner then, liminoid experiences always have a flow quality which is produced by their highly structured organisation.

This therefore relates to the goal characteristic within flow, but also to challenge/skill balance. For example, flow, as defined by Csikszentmihalyi exists within a balance of skill and challenge, in which the skill of the individual must not match the challenge exactly or else it may become too easy and boring and yet the challenge should not be so hard that the individual is unable to meet the demands through a lack of skill. The role of habit, therefore, in relation to skill is both enabling and disabling. As iterated previously, “[improvisation] demands a reflexive awareness of the known becoming a stereotype.” (cited in Cooper Albright and Gere, 2003, p. 7). It could be argued that ‘*ma*’ or the liminoid, is this in-between state in which habit is both constituted and creative.

In this moment it could be said that action and awareness merge; awareness of an individual’s habitual movement and actions coming forth from that awareness is combined. Drawing on Csikszentmihalyi’s theory of flow, it is this characteristic which results in a moment of clarity; where the self emerges stronger and the individual experiences this authentic way of being in which they have the, “authentic potentiality-for-Being-a-whole.” (Heidegger, 1927, p. 277). This experience is also alluded to in both *butoh* and in yogic practices. In *butoh* it relates to this experience of ‘no-mind’ summarised by Eastern philosopher Yasuo Yuasa:

[No-mind] is a state of body-mind oneness where the movement of mind and body become indistinguishable. It is a state of self-forgetfulness, in which consciousness of oneself as the subject of bodily movement disappears and becomes the movement itself that is dancing.

(1993, p. 27)

The idea of ‘no-mind’ suggests a loss of self-consciousness and merging of action and awareness, similar to that of *Samadhi* in yogic meditation. *Samadhi* is considered the highest level of consciousness. “In *Samadhi* a person transcends dualism, is fully present moment by moment, and enjoys life to the utmost.” (Sayama, 1986, p. vii).

Samadhi is the eighth level of yoga meditative practice. The first two steps, *yama* and *niyama* address a kind of ethical preparation, *yama* requires

restraint from acts of harm, while *miyama* involves obedience and surrender of the ego. The next two stages involve physical preparation; *asanas* are various ways of 'sitting' or holding postures, held for long periods without succumbing to strain or fatigue, while *pranayama* addresses breath control. The fifth stage, *pratyahara* involves a withdrawal of attention from the outside world, and the final three stages are all stages of mental control. *Dhrana* is the ability to concentrate for long periods in a single stimulus, *dhyana* is intense meditation in which the individual experiences uninterrupted concentration and as discussed, *Samadhi* is the final state and most enjoyable (Pegrum, 2001).

The links to flow are numerous; the eight steps could be considered skills to be acquired. All address a sense of control and concentration and all require clear goals and feedback. Action and awareness merging can be experienced in the practice of *asanas* as well as *pratyahara* and a loss of self-consciousness is experienced in the final stage, as well as being fundamentally autotelic. A transformation of time is also experienced in many of the stages where an individual is able to concentrate for long periods yet experience only minutes.

The yoga practices can also be linked to Laban and Lamb's theories of movement practice and observation. For example, while *asanas* are characterised by a held position, they are experienced as dynamic and not static in which small imperceptible adjustments of posture are performed and there is a feeling of continuous energy moving in all directions. It also works to free the body from negative holding patterns to enable positive patterns of habit. Within yoga there is also the possibility of exploring all ranges of effort and shape as it facilitates individual movement patterns.

It is also possible to relate Laban and Lamb's work to *butoh* and their notions of imagery in improvisation. As mentioned earlier *butoh* was inspired by Western practices, in particular it was inspired by the German expressionist movement. In the expressionist work of Wigman, Laban and Jooss, the aesthetic depends upon presenting an outer expression of an

inner emotion. Expressionism has a tendency to distort reality for emotional effect. It is believed both Ohno and Hijikata studied in German expressive dance before developing butoh, which also addresses expression through the grotesque and absurd.

Butoh further links to Movement Pattern Analysis with regard to this interest in opposites. Hijikata and Ohno are characterised as polar opposites (Fraleigh and Nakamura, 2006, p. 31), with Hijikata's interest in the negative, death and ugly beauty, and Ohno interested in the spiritual and organic. Butoh addresses the whole spectrum of experience in the same way that Laban's analysis allows for a full spectrum of movement. Despite their similarities their approach remains quite different:

Butoh dancers also explore these metaphysical elements, but they find the psychological shape of these in a way that Laban's work does not. The way toward metaphysics in butoh is imagistic, often meditative, and sometimes wild.

(Fraleigh, 2010, p. 51)

5.5 Workshop phase

Within the practical component of the work, it is therefore important to develop tasks which will facilitate flow for the dancers. In the workshop phase of this process the tasks were defined and refined with two different dancers to those used in the data collection phase. With these two dancers, numerous tasks and techniques were used in engaging the dancers. In the first workshop several tasks were used over varying time periods. For example some tasks were open ended allowing the dancers to explore the tasks in their own time, while some were limited to only three or five minute improvisations.

It became clear, however, that the more time structured improvisations were better in facilitating flow, as often the dancers had explored all movement possibilities but were not sure if it was appropriate to stop dancing. It also became clear that the dancers had a preference for particular tasks however, these were often not the same tasks and, while

they commented that they were able to improvise longer on these tasks it would mean while one dancer was finished the other was still exploring. It therefore became apparent that some time was needed to allow the dancers to explore any particular task for a longer period of time. The final workshop therefore gave each dancer a selection of various tasks to improvise within a three minute time limit and then a final task encouraged the dancers to choose one of those tasks, which they found most intrinsically motivating, to explore for an unlimited amount of time (though this was usually under ten minutes).

The tasks used varied in terms of focus. For example, some used imagery, drawing on butoh, while others addressed more conceptual, spatial or sensational tasks (see Appendix A: Movement Tasks). Task three is an image task from Eric Franklin, which is also often used in butoh, in which the dancer is asked to imagine themselves as a puff of smoke dissipating into space. Task four, on the other hand, from Blom and Chaplin's *The moment of movement* (2000), asks dancers to explore the three planes in space. Task six, however, simply asks the dancer to explore the different kinds of touch.

As a warm-up, a yoga style exercise was composed based on the Surya Namaskara A and B sequences (sun salutations) from Ashtanga yoga practice. Ashtanga yoga is quite a dynamic practice which is good for a warm-up, enabling increased circulation. Ashtanga yoga builds heat internally enabling an individual to soften tight muscles and increase flexibility. It is also a good way of focussing the mind in preparation for the improvisation. Through encouraging postural alignment, yoga is also useful in breaking negative holding patterns.

Drawing on Csikszentmihalyi's conditions for flow in dance, it could be argued that improvisation practices, which draw on imagery satisfy the first condition for creativity, while practices such as yoga satisfy the second condition that of friendship and relaxation. The third condition; problem solving is addressed within both practices through the forming and

breaking of habit which enables action. It is through the challenge of identifying when habit becomes negative, and the resulting action taken, that new habit patterns emerge. Neither activities insist on a particular style of movement, enabling an individual to develop a sense of their own body and preferred movement patterns.

Consequently, a workshop was devised for the study which draws on yoga practices as a warm-up, to stimulate both mind and body and centre the dancer as well as improvisatory tasks, utilising numerous different techniques for creation, including that of imagery in practices such as *butoh*. While the two workshop phase dancers both drew on image tasks for their final free task, all tasks, including the conceptual, perceptual and spatial tasks, remained, in order to enable variety and discussion during the data collection phase. While this chapter provides the rationale for the practical components, Chapter Ten provides the outcomes of the workshops, and the practical results of each stage in terms of clarifying structure and process. Part Three, however, provides a method for the practice.

PART THREE: CAPTURING FLOW

Chapter Six: Identifying Flow

This chapter explores Merleau-Ponty's notion of intersubjectivity in order to reach an understanding of the role of the body in empathic relations. The chapter lays the groundwork for the method of identifying flow in the body of the other, and further, within the digital body of the other. The research draws on neurobiological studies in mirror-neuron activation to support the phenomenology of Merleau-Ponty, and makes reference to recent research in dance concerning audience engagement with, and kinaesthetic response to the dancing body.

6.1 Intersubjectivity

In Part Two of *Phenomenology of perception* (1945), titled 'The world as perceived', Merleau-Ponty's opening chapter title explains 'The theory of the body is already a theory of perception' (p. 235). Merleau-Ponty's aim is to show that consciousness and the world are mutually dependent. He writes, "[t]he world is inseparable from the subject, but from a subject which is nothing but a project of the world, and the subject is inseparable from the world, but from a world which the subject itself projects." (Merleau-Ponty, 1945, p. 499-500). There must therefore be both a subject and world, which interact through perception. However, there is a further dimension to an individual's existence in the world; each individual inhabits a world that is shared with other people. Merleau-Ponty developed his thinking on intersubjectivity at the end of Part Two in 'Other selves and the human world'; however it was not explicitly formulated until his final

writings, particularly in the unfinished work, *The visible and the invisible* published after his death in 1964.

In *Phenomenology of perception*, Merleau-Ponty deals with this awareness an individual has of others as subjects:

Whether it be a question of vestiges or the body of another person, we need to know how an object in space can become the eloquent relic of an existence; how, conversely, an intention, a thought or a project can detach themselves from the personal subject and become visible outside him in the shape of his body, and in the environment which he builds for himself.
(Ibid, p. 406)

Merleau-Ponty begins his discussion by considering the experience of others to be symmetrical; an individual's experience of their self and their awareness of others must in some sense, be the same. Their awareness of another's bodily self, for example, is much the same as their experience of their own body. The individual is also aware that they are agents and that therefore the world is shared.

However, an individual does not simply watch others, they communicate with them; Merleau-Ponty goes on to discuss that intersubjectivity also involves an individual experiencing their self as something that others can experience in the same way that they experience them. He states that, as collaborators, "my thought and his are inter-woven into a single fabric... they are inserted into a shared operation of which neither of us is the creator." (Ibid, p. 413). He goes on to discuss the "consummate reciprocity" (Ibid, p. 413) an individual experiences when both participants are actively engaged in the event of consciousness.

In *The visible and the invisible*, Merleau-Ponty develops the notion of the reciprocal into the reversibility of the flesh. Here he extends his thesis to apply to an individual's sense that others, like them, are both subjects and objects. "The handshake too is reversible; I can feel myself touched as well and at the same time as touching..." (Ibid, p. 142). This example of the handshake addresses an embodied intersubjectivity which enables an

understanding of the other and the self through the reciprocity of an individual's experience of the world.

Lecturer in Moral Education, Matthew Victor Schertz, in his article 'Empathy and intersubjectivity: resolving Hume and Smith's divide' (2007), applies Merleau-Ponty's theory of intersubjectivity to the concept of empathy. He argues this application "has the potential to resolve the difficulties that have plagued the concept since its inception." (Schertz, 2007, p. 166). He provides an analysis of David Hume and Adam Smith's theories on empathy, questioning:

Are we beings that are structurally positioned to communicate, understand and share emotional states within an intersubjective system, or are we inherently separated subjectivities who can only imagine or project emotional experiences which are separately located in other subjectivities?

(Schertz, 2007, p. 165)

These two lines of thought highlight the debate surrounding empathy as either an affective or cognitive act and are propounded by "disparate philosophical movements" (Schertz, 2007, p. 165). In the next sub-section this debate is addressed drawing first on the conception of kinaesthetic empathy within dance studies in order to highlight a further dichotomy between emotional and bodily acts, and then drawing on the discussions of empathy from scholars within the field of philosophy of mind.

6.2 Kinaesthetic empathy

Within dance, a recent interest in empathy research has been applied in understanding the process of watching dance. Kinaesthetic empathy is a term which has quite recently been re-investigated by dance scholars (Foster, 2011; Reason and Reynolds, 2010; Reynolds and Reason, 2012; Ehrenberg, 2010), and has resulted in the research project *Watching dance: kinaesthetic empathy* undertaken by Dee Reynolds, Matthew Reason, Marie-Hélène Grosbras, Frank E. Pollack, Anna Kuppaswamy, Corinne Jola, Karen Wood, Aubrey Scully and Shantel Ehrenberg. Their research addresses kinaesthetic empathy as a way of understanding and

enjoying dance and utilises mirror neuron theory to support their hypotheses. (Jola, Ehrenberg and Reynolds, 2012; Jola *et al.*, 2012).

In relation to the experience of watching dance, an initial analysis begins by addressing the terms kinaesthesia and empathy, detailed below; both were invented in the same decade, in the 1880s. The combined terminology of the kinaesthetic empathy was developed through the discussions of twentieth century dance critic John Martin (1893-1985) who used a range of terms to describe this experience. However, some would argue, indicate other kinds of response, and his views “can be perceived as overly prescriptive and based on universalist assumptions.” (Reason and Reynolds, 2010, p. 54).

For Martin, empathy was often interchangeably linked with sympathy:

When we see a human body moving, we see movement which is potentially produced by any human body and therefore by our own... through kinesthetic sympathy we actually reproduce it vicariously in our present muscular experience and awaken such associational connotations as might have been ours if the original movement had been of our own making.

(Martin cited in Reason and Reynolds, 2010, p. 54)

However, many would argue that “in order to feel sympathy, in order to feel compassion with, say, somebody’s suffering, you first need to understand that the other is indeed suffering.” (Zahavi and Overgaard, 2012, p. 6). Not only is empathy different and prior to sympathy, but it is therefore possible to empathise with someone without feeling any sympathy. It is possible to watch a human body moving without sympathising with their experience.

Another related term is that of motor mimicry or emotional contagion in which an individual can ‘catch’ the emotion in question without necessarily being aware of the other. For Zahavi and Overgaard, “this is precisely what makes emotional contagion different from empathy. In empathy the experience you empathically understand remains that of the other. The focus is on the other, and the distance between self and other is preserved and upheld.” (Zahavi and Overgaard, 2012, p. 6). Emotional contagion

might explain why a certain experience occurs in an individual, but it does not explain how that individual comes to understand the other.

In empathy therefore, the focus is on the other and announces the presence of the others' experience without providing first-personal access to it:

[E]mpathy, rather than being some mysterious form of telepathy, simply amounts to an experience of the embodied mind of the other, that is, simply refers to our ability to access the life of the mind of others in their bodily and behavioural expressions; it is an ability that can improve with familiarity, learning, and salience.

(Ibid, p. 10)

It is important to note, therefore, that empathy fundamentally involves the observance of physical bodily action. This is an important note which Foster addresses in her book *Choreographing empathy: kinesthesia in performance* (2011) where she writes: "[t]he fact that the experience of empathy needs to be qualified with the adjective 'kinesthetic' belies the pervasive assumption that emotional and physical experiences are separate." (Foster, 2011, p. 10). Foster notes that the term empathy has changed significantly over the course of the twentieth century, "residing within the domain of psychology where it has been investigated largely as an emotional, and not physical experience." (Ibid, p. 10).

Kinaesthesia, like the term empathy, has also changed over time. At the start of the twentieth century it was closely aligned with that of proprioception. Proprioception is often defined as an individual's pre-reflective awareness of their limb positioning, from an internal perspective. Whereas kinaesthesia is often considered to be the pre-reflective awareness an individual has of their limbs in relation to external stimuli, for example how an individual is able to direct their hand toward a glass without the need to spacially locate their limb prior to the action. However, inner and outer functions are not always clear cut, though both are supported by an individual's body schema, as discussed in Chapter Two.

By the mid twentieth century, it was further posited that kinaesthesia “assisted in integrating sensory information from all other systems” and “[m]ore recently it has been taken up in the work of neurobiologists exploring how the brain senses bodily movement.” (Ibid, p. 7). This neurological view has been investigated by cognitive scientists as well as academics in the field of philosophy of mind, which addresses multiple disciplines such as phenomenology, psychology, cognitive science, artificial intelligence and neurobiology.

6.3 Neurobiology

Helena De Preester, lecturer in philosophy of mind, addresses the neurobiological concern of empathy in relation to phenomenology. Numerous neurobiologists are concerned with embodied cognition and developing understandings of how an individual empathises with another. Gallese (2005, 2007a, 2007b, 2008, 2011) is a key theorist, who developed an understanding of mirror neurons in the macaque monkey, discussed below. However, there are many disagreements as to how these mirror neurons contribute to a theory of empathy (Anderson, 2003; Frassinetti *et al.*, 2011; Freedberg and Gallese, 2007; Gallese, Eagle and Migone, 2007; Gallese and Sinigaglia, 2011; Ignatow, 2007; Lakoff and Johnson, 1999; Rizzolatti and Craighero, 2005; Varela, Thompson and Rosch, 1993; Zahavi and Overgaard, 2012).

The key argument when understanding the debate surrounding empathy revolves around the interpretation of mirror neurons. Mirror neurons were discovered in the macaque monkey in the premotor cortex of the brain. The neurons fire when the monkey observes the actions of another, and it was found that the same neurons fire in the other, performing the actions (Gallese *et al.*, 1996; Rizzolatti *et al.*, 1996). Evidence, however, is lacking in human studies, though it is implicated by EEG, MEG and brain imaging studies (Rizzolatti and Craighero, 2004).

[A]n action is recognized when the observed action activates, in the observer’s brain, an analogous motor representation. The observer does not execute that action, because control

mechanisms prevent its overt occurrence, but the evoked motor representation (“motor knowledge”) allows him to understand the meaning of what he saw.

(Rizzolatti and Craighero, 2005, p. 108)

The firing of the same neurons in the observer implies these mirror neurons are required in understanding the actions of the other. The actions observed have been what are considered ‘cold actions.’ Cold actions are those without obvious emotional content, for example, actions observed in the monkeys include the grasping motion of a tool. What is important to note is that the “mirror neurons do not respond to object presentation. Similarly, they do not respond to the sight of an agent mimicking actions or performing non-object-directed gestures” (Ibid, p. 109). This implies that the neurons only fire when actions are task oriented and directed towards the world.

Despite the lack of actions including emotional content, for many the mirror mapping mechanism is used as a hypothesis. Within dance research, studies suggest similar findings with regards to the activation of mirror neurons in watching dance (Jola, Ehrenberg and Reynolds, 2012, Bläsing *et al.*, 2012; Cross and Ticini, 2012; Homann, 2010; Jola *et al.*, 2012; Mason and Dalman, 2009). Studies suggest that when an observer perceives another displaying an emotion, the same motor areas are activated. The process of the mirror mapping mechanism implies that imitation is an important factor in action understanding and therefore “recognition occurs because the observed emotion triggers the feeling of the same emotion in the observing person. It is a first-person recognition.” (Rizzolatti and Craighero, 2005, p. 117). This would imply that empathy is more closely aligned to emotional contagion than first suggested. However, many disagree with this view and have attempted to resolve the problem of empathy for a mirror neuron perspective, by employing phenomenological research (Gallagher, 2005; Gallese, 2005, 2011; Lakoff and Johnson, 1999).

Most of the studies draw on a Husserlian phenomenology. Husserl suggested that in order to understand the 'other' an individual must first understand their own body as 'Leib' or living body. The individual then perceives the other body as Leib through what he calls 'apperceptive transfer' as Helena De Preester notes,

According to Husserl, the motivation of the apperceptive transfer of sense is to be found in a similarity that connects the body of the other with my body, and it is due to this similarity that the body of the other is perceived as another animate organism.

(De Preester, 2008, p. 135)

In this instance, the individual must recognise either visual or auditory similarity between the body of the other and their own, which Husserl calls 'Paaring' or pairing. For De Preester, Husserl's logic remains problematic in the presupposed identification of the other. De Preester argues that Merleau-Ponty's understanding of the other can complement and build on Husserl's, though she argues both are required in understanding the structure of the mirror neuron.

In Merleau-Ponty's understanding of the other, the mediating term between self and other is not bodily similarity, but the external world. For Merleau-Ponty, the concern is not that of the gesture but that the gesture is directed toward a shared object in the world: "The gesture which I witness outlines an intentional object. This object is genuinely present and fully comprehended when the powers of my body adjust themselves to it and overlap it." (Merleau-Ponty, 1945, p. 215). This relates to the fact that the mirror neurons are only activated in goal specific action. However, goal in this sense can include social goals, such as in the greeting of others.

It is important to elaborate further on Merleau-Ponty's later work regarding the chiasm, to address what De Preester sees as the resolve; "that visual and motor systems speak the same language prevents making the presupposition Husserl had to make; the need for a preceding objectification of one's own body in order to arrive at the required

similarity.” (De Preester, 2008, p. 141). It could be argued that Merleau-Ponty addresses this through his understanding of reversibility:

We must habituate ourselves to think that every visible is cut out from the tangible, every tactile being in some manner promised to visibility, and that there is encroachment, infringement, not only between the touched and the touching, but also between the tangible and the visible, which is encrusted in it, as, conversely, the tangible itself is not a nothingness of visibility, is not without visual existence... every vision takes place somewhere in the tactile space. There is double and crossed situating of the visible in the tangible and of the tangible in the visible; the two maps are complete, and yet they do not merge into one. The two parts are total parts and yet are not superposable.

(Merleau-Ponty, 1964, p. 134)

De Preester, however, still sees a minimal version of pairing necessary in that a “minimal set of requirements concerning the body of the other is necessary in order to recognize that the other has a similar body.” (De Preester, 2008, p. 142). This however, creates problems with regard to an individual’s ability to empathise with digital ‘others.’

6.4 The digital ‘other’

Research has been conducted regarding the observation of biological movement from point-light display animation (Johansson, 1973; Hodgins, O’Brien and Tumblin, 1998; Troje, 2013; Wild *et al.*, 2009) and how this can be considered empathetic (Gowan *et al.*, 2010; Gowan, Stanley, and Miall, 2008; Kilner, Paulignan and Blakemore, 2003; Kilner, Hamilton and Blakemore, 2007; Marin, Issartel and Chaminade, 2009; Press, 2011; Press, Gillmeister and Heyes; 2006; Press, Heyes and Kilner, 2011; Saygin, Cook and Blakemore, 2010; Saygin *et al.*, 2004; Stanley, Gowan and Miall, 2007, 2010).

Johansson’s research within the field of visual perception of biological motion (1973), utilises a technique called point-light display in which light emitting or reflective dots are attached to the joints of the body in a darkened room so that “a very good recording of the motion tracks of the different joints [is given] without revealing any traces of the background or

the body contours.” (Johansson, 1973, p. 202). More sophisticated techniques have been developed since this research utilising motion capture data. However, the results remain the same; point-light animation “evoke a compelling impression of human walking, running, dancing, etc.” (Ibid, p. 201).

Further to the apparent action understanding of perceived ‘cold actions’ in biological motion, it has also been suggested that individuals “can judge the emotional implications of an action when viewing [point-light] animations of the whole body.” (Blake and Shiffrar, 2007, p. 51). They suggest that this ability to understand human affective motion is, however, only possible in fluid motion:

With all of these techniques, [mocap included], static frames of the resulting animation typically appear as meaningless assemblages of dots, with little hint of an underlying configuration. But when successive [point-light] frames are shown in rapid succession, naïve observers experience compelling apparent motion depicting a human form engaged in a specific activity.

(Ibid, p. 49)

This suggests that human affective motion shares the same conditions as for mirror neuron activation; that it is motional and task oriented.

Point-light animation was explored by Saygin *et al.* (2004) in order to identify whether the frontal cortex was activated in observation of point-light animated biological motion. Results showed that “frontal cortex showed a robust response to point-light biological motion.” (Saygin *et al.*, 2004, p. 6186). Further, it was noted that “in the macaque, mirror neurons in premotor cortex respond only to real actions performed in front of the monkey and not even to videotaped actions (Ferrari *et al.*, 2003), whereas human premotor cortex responds even to point-light biological motion representing actions.” (Ibid, p. 6187). Thus the human mirror neuron system may be more capable of understanding abstract incorporeal representations of actions.

The question remains as to the role of the body in empathy. De Preester's need for recognising the body of the other as being similar to the body of the observer does not stand up when observing and empathising with a digital other. In another neurobiological study by Stanley *et al.* (2007), the effects of instructing participants that point-light stimuli were either human or computer generated on the motor neuron system were studied. It was found that belief did indeed effect the activation of the mirror neuron system; they suggest that "[i]nterference effects due to dot observation were present for both biological and non-biological velocity profiles when the participants were informed that they were observing pre-recorded human movement and were absent when the dot motion was described as computer generated." (Stanley *et al.*, 2007, p. 915) It could therefore be argued that empathy requires the belief that the motion of the representation belongs to the body of the other, but does not require identification with the physical body of the other.

This therefore resolves the problem identified by De Preester in her example from Rizzolatti *et al.* in which "(...) actions made using tools, even when very similar to those using hand, do not activate or activate very weakly the neurons." (Rizzolatti *et al.* cited in De Preester, 2008, p. 140). This, subsequently, resolves the need for the use of Husserl's pairing in understanding empathy. Merleau-Ponty further supports this in his conceptualisation of the reversibility of the other:

What is open to us, therefore, with the reversibility of the visible and the tangible, is – if not yet the incorporeal – at least an intercorporeal being, a presumptive domain of the visible and the tangible, which extends further than the things I touch and see at present.

(Merleau-Ponty, 1964, p. 142-143)

Merleau-Ponty's conception of intersubjectivity relies on the individual's directness toward a shared world, in which an understanding of the other arises from a reflexive reversibility and a shared narrative of the world. Empathy is thus possible, not only through embodied interaction with the other, but also in the experience of the other within the embodied objects

of world. This conceptualisation of the other informs the methodology for the research in enabling an understanding of the other through the artefacts of experience. In the next chapter a method for engaging with the other through verbal dialogic practice is presented, in order to identify a shared understanding of the experience of flow.

Chapter Seven: Dialogic Flow

This chapter addresses the dialogic processes involved in 'capturing flow.' It begins by discussing a hermeneutic phenomenology as a method for accessing the flow experiences and in particular draws on the work of Dr Linda Finlay, and her method of 'reflexive embodied empathy' in understanding the role of the researcher in the interpretation of meaning. The chapter also examines the role of reflection in the 'moment of flow' and then offers an analysis of the stream-of-consciousness writing and semi-structured interviews conducted during the research in order to validate and substantiate the data collected during these dialogic practices.

7.1 Hermeneutics

In her article, 'Hermeneutic phenomenology and phenomenology: a comparison of historical and methodological considerations' Susan Laverty (2003) draws out the similarities and differences between phenomenology and hermeneutic phenomenology in terms of their historical and methodological perspectives. The early phenomenology of Husserl is a descriptive one which focuses on the structure of experience. It seeks to elucidate the essences of these structures as they appear in consciousness. Hermeneutic phenomenology on the other hand is interpretive and concentrated on historical meanings of experience and their motivating prejudices. The interpretive process relies on an interaction between the reader and the historical text:

[A] hermeneutical approach asks the researcher to engage in a process of self-reflection to quite a different end than that of phenomenology. Specifically, the biases and assumptions of the research are not bracketed or set aside, but rather embedded and essential to interpretive process.

(Lavery, 2003, p. 28)

Hermeneutic phenomenology is typically associated with the writings of Heidegger, and is concerned with language as a means of interpreting experience. One of the main differences between hermeneutic phenomenology and phenomenology exists in relation to reflection. While both emphasise a process of self-reflection, the aim of phenomenology is to bracket any bias, however, the biases encountered in hermeneutic phenomenology are essential to interpretation.

Hermeneutic phenomenology references the interpretative nature of Being. Heidegger described his phenomenology of Dasein as hermeneutic “in the primordial signification of this word, where it designates this business of interpreting.” (Heidegger, 1927, p. 62). He aimed to demonstrate how the whole manner of human existence is interpretative.

In interpreting, we do not, so to speak, throw a ‘signification’ over some naked thing which is present-at-hand, we do not stick a value on it; but when something within-the-world is encountered as such, the thing in question already has an involvement which is disclosed in our understanding of the world, and this involvement is one in which gets laid out by the interpretation.

(Ibid, p. 190-191)

Heidegger begins by looking at the structure of the question, which he felt in its performative nature was a form of disclosing much like asserting. In order to ask a question the individual must have some kind of pre-understanding of what they are asking about, “[e]very seeking gets guided beforehand by what is sought,” (Ibid, p. 24). Thus the kind of answer the individual gets depends on their way of posing the question.

Heidegger believed the nature of the question is circular in that the individual discloses the answer in light of what they already know, however

this circle is not necessarily 'vicious', rather, it allows the individual to formulate new questions in order to arrive at an understanding.

What is decisive is not to get out of the circle but to come into it in the right way. This circle of understanding is not an orbit in which any random kind of knowledge may move; it is the expression of the existential *fore-structure* of Dasein itself. It is not to be reduced to the level of a vicious circle, or even a circle which is merely tolerated. In the circle is a hidden positive possibility of the most primordial kind of knowing. To be sure, we genuinely take hold of this possibility only when, in our interpretation, we have understood that our first, last, and constant task is never to allow our fore-having, fore-sight, and fore-conception to be presented to us by fancies and popular conceptions, but rather to make the scientific theme secure by working out these fore-structures in terms of the things themselves.

(Ibid, p. 195)

The nature of Being must therefore be understood in its historicity. The circular structure of Dasein is reflected in its ontico-ontological nature.

Merleau-Ponty's phenomenology, while not explicitly hermeneutical in the way that Heidegger's was, has been termed a 'hermeneutics of ambiguity' (Busch and Gallagher, 1992) which incorporates his accounts of the human body, language, and temporality. Thomas Busch and Shaun Gallagher, discuss Merleau-Ponty in relation to hermeneutic phenomenology in their book *Merleau-Ponty, hermeneutics and postmodernism* (1992). They argue that while Merleau-Ponty's philosophy was not explicitly hermeneutic, his theory of perception was rooted in interpretation. They suggest that for Merleau-Ponty the body is "both an interpretational constraint and an enabling condition." (Busch and Gallagher, 1992, p. 4). Merleau-Ponty believed interpretation is not in the mind; "it is not first of all a meaning for the understanding, but a structure accessible to inspection by the body" (Merleau-Ponty, 1945, p. 373). Merleau-Ponty identified the embodied subject as the seat of interpretation. He developed this notion in terms of intersubjectivity, where the other must make the individual "surprised, disoriented" (Merleau-Ponty, 1973, p. 142) in order to allow them to formulate new questions.

Numerous texts address Merleau-Ponty's intersubjectivity in relation to social research, including Rupert Wegerif in his article 'Dialogic or dialectic? The significance of ontological assumptions in research on educational dialogue' (2008) in which he addresses the notion of dialogicality in relation to Mikhail Bakhtin (1895-1975), literary theorist and semiotician. He compares Merleau-Ponty's chiasm to Bakhtin's view:

Thought about the world and thought in the world. Thought striving to embrace the world and thought experiencing itself in the world (as part of it). An event in the world and participation in it. The world as an event (and not as existence in ready-made form).

(Bakhtin cited in Wegerif, 2008, p. 354)

Here he points to the reversibility of experience, and explains in a later article that dialogue can appear as both inside and outside; "[o]ne important defining feature of a dialogue is the presence of the other on the inside of the formation of my utterances even before I open my mouth to speak." (Wegerif, 2011, p. 180). He goes on to describe the way in which the other is already prior to any initial interaction in the way an individual uses their vocabulary and considers their possible response. It is therefore important to acknowledge the researcher's direct and intimate role through the process of collecting the data and interpreting the findings.

Linda Finlay, a psychotherapist based in the UK, addresses a qualitative research method for addressing lived experience. Her numerous articles (2005; 2006; 2009a; 2009b) address a phenomenological approach to lived experience, in which she attempts to articulate a practical methodology based on hermeneutic phenomenological descriptive practices. She suggests a particular way of engaging with others called 'reflexive embodied empathy', which addresses the intimate role of the researcher in engaging with, and understanding the participant. 'Reflective embodied empathy' addresses the researchers "need to learn to read and interrogate their body's response to, and relationship with, the body of the research participant (the Other)." (Finlay, 2005, p. 272).

Finlay's research draws on an area of research called Interpretative Phenomenological Analysis (IPA) which explores the way in which individuals make sense of their personal and social lived experience. (Brocki and Wearden, 2006; Smith, 1996; Smith, Jarman and Osborn, 1999; Smith and Osborn, 2003; Smith, 1994). It is used mainly in clinical psychology studies. However as Smith and Osborne note,

IPA strongly diverges from mainstream psychology when it comes to deciding the appropriate methodology for such questions. While mainstream psychology is still strongly committed to quantitative and experimental methodology, IPA employs in-depth qualitative analysis. Thus, IPA and mainstream psychology converge in being interested in examining how people think about what is happening to them but diverge in deciding how this thinking can best be studied.
(2003, p. 54)

This divergence in thinking reflects IPA's "commitment to the person as a cognitive, linguistic, affective and physical being" (Ibid, p. 54). The use of language, both physical and linguistic, as a tool for expressing an individual's thought is drawn upon, as well as the use of interpretation in understanding the other.

IPA is usually conducted through interview, and addresses an embodied approach to understanding the interviewee (Burns, 2003; Powney and Watts, 1987). This body is thus engaged by the researcher as a way of understanding "physical' exchanges that occur in a reciprocal manner between the researcher and the participant," (Burns, 2003, p. 230). This manner of interview therefore neglects neither the verbal or physical exchanges between researcher and participant. In these interviews, reflection is employed by the researcher, in order to acknowledge and critique their own embodied relation to the participant.

Finlay's distinct method of 'reflexive embodied empathy' "advocate[s] a research process that involves engaging, reflexively, with the participant's lived body, the researcher's own body, and the researcher's embodied intersubjective relationship with the participant," (2005, p. 272). As a method, it involves a process of hermeneutic reflection which "can be

understood as a process of continually reflecting on one's experience as a researcher, alongside the phenomenon being studied, so as to move beyond the partiality and investments of one's previous understandings." (Ibid, p. 279).

7.2 Reflective practice

In this section, reflective practice is discussed, addressing the key theorist Donald Schön and his work; *The reflective practitioner: how professionals think in action* (1991). This work, was a major contributor to the field of professional practice and influenced many further researchers work, such as Gillie Bolton's *Reflective practice: writing and professional development* (2005) which explores "the gaps between the known and the unknown, the habitual and the possible." (Kahn, 2012, p. 20). Reflective practice has also become a major area of research in relation to education and pedagogical practices (Moon, 1999, 2006; Van Manen, 1991).

This research compliments further research in the field of practice as research, discussed in Chapter One. The key notions drawn on within this field include tacit knowledge, and knowledge-in-action as discussed in Robin Nelson's 'Practice-as-research: knowledge and their place in the academy' (2009). Here, both Nelson and Schön draw on key texts such as Gilbert Ryle's *The concept of mind* (1949) which addressed the key terms 'know-how' and 'know-that', as well as Michael Polanyi's *Personal knowledge* (1958) and his later work *The tacit dimension* (1966) which addresses tacit knowing.

Recent research in dance discusses the role of reflection in dance education. Leijen *et al.* in their article 'Challenges to face: difficulties dance students encounter with reflection and how to overcome these' (2007) evaluate techniques for dance students for engaging in reflective practice. Other research, such as Doughty *et al.* (2008) and Leijen *et al.* (2009) explore the role of technology in enhancing reflective practice in dance. They both discuss particular technologies, such as use of video within practice, for recording and playback as a means of self-observation; to

instigate reflection on their practice and, in Doughty *et al.*, in habitual movement recognition.

Donald Schön (1930-1997) graduated from Yale in 1951 as a philosophy student, he continued his Masters and Doctoral research in philosophy at Harvard. After completing his studies, he taught at several universities in America, however, he also worked for the industrial research firm Arthur D. Little, Inc. where he formed the New Product Group in the Research and Development Division. His first seminal work was *Displacement of concepts* (1963) which dealt with “the ways in which categories are used to examine “things” but are not themselves examined as ways of thinking.” (Parlett cited in Pakman, 2000, p. 5). However, it was not until 1983 with his work *The reflective practitioner* that his work became deeply influential with regards to the development and process of reflective practitioners.

In *The reflective practitioner*, Schön sought to offer an approach to reflective practice that was based on the work of a number of practitioners. He began by articulating the notion of ‘knowledge-in-action;’ “in much of the spontaneous behaviour of skilful practice we reveal a kind of knowing which does not stem from a prior intellectual operation.” (Schön, 1983, p. 51). Here he draws on Gilbert Ryle’s articulation of ‘know-how’ and ‘know-that’ and Michael Polanyi’s research in ‘tacit knowing’, discussed earlier in Chapter One. He goes on to define the following properties of knowing-in-action:

- There are actions, recognitions, and judgements which we know how to carry out spontaneously; we do not have to think about them prior to or during their performance.
- We are often unaware of having learned to do these things; we simply find ourselves doing them.
- In some cases, we were once aware of the understandings which were subsequently internalized in our feelings for the stuff of actions. In other cases, we may never have been aware of them. In both cases, however, we are usually unable to describe the knowing which our action reveals.

(Schön, 1983, p. 54)

In terms of the phenomenologist's discussion of 'embodied knowledge,' knowledge in the body is pre-reflective (Sheets-Johnstone, 1979; Fraleigh, 1987). This pre-reflective knowledge is what informs the habit body. The pre-reflective aspect of knowledge-in-action means there is no prior intention towards the action; thinking and action are therefore temporally inseparable and this can be seen in relation to action and awareness merging in flow, as discussed in Chapter Three. Schön's 'knowing-in-action' is bodily, tacit and pre-reflective. Both Schön and Csikszentmihalyi, draw on the example of a ball game in describing the players' focus on the game and lack of explicit thought in their skilful action:

[A] big pitcher's know how is in his way of pitching to a batter's weakness, changing his pace, or distributing his energies over the course of a game. There is nothing in common sense to make us say that know-how consists in rules or plans which we entertain in the mind prior to action. Although we sometimes think before acting, it is also true in much of the spontaneous behavior of skilful practice we reveal a kind of knowing which does not stem from a prior intellectual operation.

(Schön, 1983, p. 51)

This is similarly reiterated in Csikszentmihalyi's research on flow:

A person in flow has no dualistic perspective: he is aware of his actions but not of the awareness itself. A tennis player pays undivided attention to the ball and the opponent...yet for flow to be maintained, one cannot reflect on the act of awareness itself.

(Csikszentmihalyi, 1975, p. 38)

Schön, however, then argues that an individual can think about what they are doing in the moment of action, which he terms 'reflection-in-action:

When good jazz musicians improvise together, they also manifest a "feel for" their material and they make on-the-spot adjustments to the sounds they hear. Listening to one another and to themselves, they feel where the music is going and adjust their playing accordingly. They can do this, first of all, because their collective effort at musical invention makes use of a schema – a metric, melodic, and harmonic schema familiar to all the participants – which gives a predictable order to the piece. In addition, each of the musicians has at the ready a repertoire of musical figures within the schema which bounds and gives coherence to the performance. As the musicians feel the direction of the music that is developing out of their

interwoven contributions, they make new sense of it and adjust their performance to the new sense they have made. They are reflecting-in-action on the music they are collectively making and on their individual contributions to it, thinking what they are doing and, in the process, evolving their way of doing it. Of course, we need not suppose that they reflect-in-action in the medium of words. More likely, they reflect through a “feel for the music”

(Schön, 1983, pp. 55-56)

In the above example, Schön demonstrates how reflection-in-action is the result of surprise. He goes on to suggest that the structure of reflection-in-action hinges on these moments of surprise, either pleasing or unwanted, and focuses on “the outcomes of action, the action itself, and the intuitive knowing implicit in the action.” (Ibid, p. 56). Reflection-in-action, for Schön, is something an individual acquires as in his example of the architect tutor, Quist, and his student, Petra. In this example he explains that it is Petra’s inability to reflect-in-action that prevents her attempts to solve the architectural problems she faces.

Whilst Csikszentmihalyi argues that an individual cannot reflect on their actions in the moment of flow, he does still see reflection as a part of the flow experience: “[t]ypically, a person can maintain a merged awareness with his or her actions for only short periods, which are broken by interludes when he adopts an outside perspective” (Csikszentmihalyi, 1975, p.38). This could therefore be linked to the characteristic of challenge/skill balance in flow as “[t]he addition of spurious motivational elements to a flow activity (competition, gain, danger) makes it also more vulnerable to intrusions from “outside reality.”” (Ibid, p. 42). Challenges within the task, therefore, are not just inevitable but *essential* to flow. However, there needs to be a delicate balance between challenge and skill in the task. In this respect the characteristic of surprise in reflection-in-action can be linked to flow:

Much reflection-in-action hinges on the experience of surprise. When intuitive, spontaneous performance yields nothing more than the results expected for it, then we tend not to think about it. But when intuitive performance leads to surprises, pleasing and promising or unwanted, we may respond by reflecting-in-

action.... In such processes, reflection tends to focus interactively on the outcomes of action, the action itself, and the intuitive knowing implicit in the action.

(Schön, 1983, p. 56)

Reflection-in-action can enable an individual to reflect on the habits which are prohibiting flow or contributing to the challenge and develop new habits and practices.

This relates to the notion of '*ma*', or liminality, discussed in Chapter Five. It can be considered a transitional or 'in-between' state moving from the pre-reflective to the post-reflective, a term utilised by Dr. Josie Gregory a psychology graduate from Surrey. In her conference paper 'Spiritual presence' (2006) she addresses the post-reflective as the state which "follows from a groundwork of reflective work." (p. 6). For Gregory, reflection indicates a divided consciousness and a lack of presence. She quotes from John Welwood's essay 'Reflection and practice: the dialectic of awakening' which addresses transformational change in a person: "This is not saying that we should go back to prereflective identification, but that we go beyond reflection to become at-one-with our experience, through overcoming all struggles with it" (Welwood cited in Gregory, 2006, p. 6). This reflects the agency of the individual in which habit is both a constituent of, and constituted by, action.

Another term Schön developed was reflection-on-action, this is a somewhat familiar concept in writing about reflection, in which, the individual reflects on their actions after the event.

Practitioners do reflect *on* their knowing-in-practice. Sometimes, in the relative tranquillity of a post-mortem, they think back on a project they have undertaken, a situation they have lived through, and they explore the understandings they have brought to their handling of the case. They may do this in a mood of idle speculation, or in a deliberate effort to prepare themselves for future cases.

(Schön, 1983, p. 61)

This mode of reflection requires a stopping of action and indeed can inhibit actions; "[s]omeone learning to play tennis or golf or a musical instrument

may be asked to change his grip (or his embouchure) with the expectation that he will lose spontaneity for a time before recapturing it at a higher level of quality.” (Ibid, p. 279). The structure of reflection-in-action and reflection-on-action therefore, differs; whilst reflection-on-action adapts an attitude toward the past, reflection-in-action, requires a presence of attention and a movement between past and future through action.

There have, however, been several criticisms of Schön’s theory of reflection, the first, being the distinct lack of ‘anticipatory reflection’. Max Van Manen in his work; *The tact of teaching: the meaning of pedagogical thoughtfulness* (1991) writes:

Anticipatory reflection enables us to deliberate about possible alternatives, decide on courses of action, plan the kinds of thing we need to do, and anticipate the experiences we and others may have as a result of expected events or of our planned actions. Anticipatory reflection helps us to approach situations and other people in an organised, decision-making, prepared way.

(Van Manen, 1991, p. 101)

It could be suggested however, that Schön’s lack of inclusion of anticipatory reflection lies in the imaginary nature of this type of activity. “Imagination may work with outcomes of reflection-on-action, but would not be considered to be part of reflection.” (Moon, 1999, pg. 49).

Another criticism of Schön’s work is of reflection-in-action itself. Many scholars suggest it is not possible to reflect-in-action as Schön suggests. They consider that there is not enough time to reflect during action, which is implicated also in Schön’s architect case-study, “Quist reflects very little on his own reflection-in-action, and it would be easy for a student or observer to miss the fundamental structure of inquiry which underlies his virtuoso performance.” (Schön, 1983, p. 104). Lecturer in pedagogy, Peter Erlandson (2006) criticises Schön for reducing Quist’s virtuoso to some form of thinking and subsequently suggests that it is Petra, the student, who is more likely to ‘think’ during the sessions, for “[s]he does not have a system-recognition of the situation; she is not fully comfortable with the

artefacts of the practice and therefore has to take a *roundabout way* to solve problems.” (Erlandson, 2006, p. 121).

Erlandson criticises Schön’s dualistic approach to the mind/body: “Schön’s explanation adds a controlling mind, a control-matrix that, apart from generating difficult problems related to the dualistic worldview, is unnecessary and therefore to be rejected.” (Ibid, p. 120) It could be considered, however, that Erlandson makes the same error he suggests of Schön. In the previous paragraph it is Erlandson who makes this Cartesian divide in his implication that thought is a solely mindful experience. The view this thesis takes is that reflection-in-action is constituted by reflection and imagination. Its structure is different to that of reflection-on-action where an individual steps outside of the action, and it produces this ‘in-between’ state, one of unease which motivates an individual to imagine new habits directly in the body.

One problem, however, is how an individual accesses this experience, this moment of liminality, and consequently the ‘moments of flow’ which may occur as a result. Within the workshop phase of the research, in exchanges with the dancers, it was considered that the moments they remembered were those which challenged them. The ‘moments of flow’ themselves were somewhat absent from conscious thought, however, they argued that it was not the case that they were not thinking in these moments, but rather, that they were experiencing action and awareness merging, and a loss of self-consciousness, which, as described earlier, in Eastern philosophy is referred to as ‘no-mind’.

7.3 Stream-of-consciousness writing

A common technique used in accessing lived experience in the moment of dance, is through ‘stream-of-consciousness writing’. Commonly, journals and notebooks are utilised throughout the choreographic process, in order to track thoughts, feelings and sensations. In Jennifer Moon’s work, *Learning journals: a handbook for reflective practice and professional development* (2006), Moon discusses the various types of activity an

individual can engage in during reflective practice. It is an authoritative guide for practitioners and students in learning how to engage reflectively in their practice. Moon provides step-by-step advice on integrating journal writing in professional development.

In some studies of dance improvisation, such as Kent de Spain's research (cited in Cooper Albright and Gere, 2003) a particular method is used, called the experience sampling method. This method was developed by Csikszentmihalyi in his flow studies and consists of using some form of alarm (pager, stopwatch, etc.) at random times during the day/experiment in order to get the participants to record information about their state of mind. In Csikszentmihalyi's research, this was done throughout the day to record general experiences of flow in everyday activity. His respondents were required to complete an experience sampling form, a questionnaire which includes open questions contextualising their experience and Likert scales measuring the respondent's perceived situation.

The use of the Likert scale for analysing flow was developed further by sports and exercise psychologists. Jackson and March (1996) developed what they called the 'flow state scale,' a questionnaire to be completed by participants at the end of an event. It utilises a five-point Likert scale (1= strongly disagree, to 5= strongly agree), and asks thirty-six questions developed from Csikszentmihalyi's characteristics of flow. The data is then quantified to reveal correlations among experiences of flow, in relation to the characteristics of flow. These scales provide a role in the collection of standardized and measurable data. With such a scale, comparative and accumulative research is possible; however, the scales also presuppose that the subjective experience can be reduced to a number of characteristics and that the meanings of those characteristics will be interpreted in the same way by all participants.

In de Spain's research, he also noted that this procedure of filling out a form would be too time consuming for the dancers in the moment of improvisation and therefore designed a system which used two tape

recorders: “the first played a mostly silent tape during which, at random times, my prerecorded voice broke in to say, “report now,” the second, connected to a microphone, recorded anything the improviser said.” (Cited in Cooper Albright and Gere, 2003, p. 28). In this example, his dancers improvised for forty-five minutes with nobody else present. This second approach requires a verbatim response from the participant, in which the participant is encouraged to talk about their experience using their own vocabulary.

Within the research conducted for this PhD the dancers were in a motion capture suite with myself and the other technicians. For this reason it was decided that there may be a level of self-consciousness present in speaking one’s thought aloud. The dancers were instead asked to write in a personal journal for a set amount of time without stopping or pausing to consider what they had written; a task known as ‘stream-of-consciousness writing’ or ‘free writing’. Another alteration was made in the times the dancers were asked write; rather than stopping randomly during the tasks, the dancers were asked to complete the writing task immediately on the sound of the three minute alarm which concluded the task, or, for the last task, whenever they came to an end.

The stream-of-consciousness writing task is a tool often used for breaking writer’s block and for journal writing. The aim of the task is to avoid stopping and thinking about what has been written or passing judgement on what is written as it is written. In Natalie Goldberg’s *Writing down the bones: freeing the writer within* (2005) she cites certain rules:

1. *Keep your hand moving.* (Don’t pause to reread the line you have just written. That’s stalling and trying to get control of what you’re saying.)
2. *Don’t cross out.* (That is editing as you write. Even if you write something you didn’t mean to write, leave it.)
3. *Don’t worry about spelling, punctuation, grammar.* (Don’t even care about staying within the margins and lines on the page.)
4. *Lose control.*
5. *Don’t think. Don’t get logical.*

6. *Go for the jugular.* (If something comes up in your writing that is scary or naked, dive right into it. It probably has lots of energy.)

(Goldberg, 2005, pp. 10-11)

Whilst the stream-of consciousness writing task was utilised immediately after the end of a task, it could not be argued to demonstrate the dancers' reflection-in-action, but rather immediate reflection-on-action. However, according to Cowan (2010) this type of writing produces new ways of thinking and is useful in reflective practice. He advocates thinking reflectively "no earlier than just before expressing such thoughts in writing" but certainly "while writing." (p. 111). For Cowan, stream-of-consciousness writing is a way of progressing the writers thinking on a topic and is not in itself a product of this thinking but a process: "the writers thinking will already and almost immediately have advanced beyond the now historical record of the route which took them onward" (Ibid, p. 111). He sees the writing as something which may be reflected on afterwards by the writer, to "deepen their understanding, or to mop up unfinished thinking," (Ibid, p. 111), but not to correct or edit, and certainly not for a third party to read.

This may seem at odds with the purpose of the stream-of-consciousness task in this study, but while excerpts have been discussed in Chapter Eleven, its main purpose was to develop the dancers understanding of flow. This reflects the hermeneutic task of the research, in the co-construction of the meaning of flow, and allows for the researcher to reflect on the participant's process of understanding. It is important to note, however, that this process of verbalising experience will inevitably change that experience. The translation from tacit experience into linguistic form can only approximate what is felt. However, the translation, and immediate reflection on the improvisations were conducted by the very people best able to know what was experienced. While no method can be ideal, this method was best suited to the situation and the individuals.

7.4 Semi-structured interview

Drawing further on the participants' own developed understanding of flow a further process of reflecting-on-action was utilised during a semi-structured interview at the end of the session. The template interview is available in Appendix B; it addresses the participants' experience and understanding of flow, their choice of task and its effect in facilitating flow, any negative factors prohibiting flow, and their understanding of the researcher's role throughout the process. It also addressed the technological process of capturing these flow experiences and their experience of relating to these technological modes of capture, which will be discussed in further detail in Chapter Eight.

The semi-structured interview as a method for reflecting on experience and gaining information on that experience is one often used in social research. Its advantages include its suitability for exploring values, opinions and subjective experiences. It also offers a validity of response through the non-verbal clues of the participants and can facilitate comparability between participants as participants are more likely to respond to all interview questions than questionnaire questions. Further advantages over a questionnaire, includes the lack of outside influence when responding to questions.

Critics of the semi-structured interview often favour the structured interview. Their argument focuses on the standardised structure of the interview enabling consistency in the wording of the questions, thus revealing the only difference in the participant's responses. This view however presumes that there is a common vocabulary in which every word has the same meaning for every participant and researcher involved. The value of the semi-structured interview is in providing equivalence of meaning, providing opportunities to substitute words, not meaning, and acknowledging that not every respondent uses the same vocabulary.

Further problems also remain in determining the 'true' meaning of ambiguous phrases. Tacit assumptions can be made of ambiguous

phrases, often common to all respondents, yet different in meaning. It is therefore important to acknowledge that different interpretations can be made and to allow freedom to probe. The advantages of probing in semi-structured interviews include the clarification of relevant issues, the opportunity to explore subjective and personal opinions and experience as well as its ability to elicit valuable and *complete* information from the participants. It can also be useful in exploring and inconsistencies from the respondent.

The construction of the semi-structured interview was based on a review of the literature, discussed in Part Two regarding content. Initially, areas were broad, then broken down into more manageable groupings. Once the questions were formulated, the semi-structured interview was exposed to internal review in which colleagues discussed and corrected any ambiguities, leading questions and other criticisms. Finally the interview was conducted in a further workshop phase with participants not included in the study, in order to ensure participants were able to answer the questions and it was successful in eliciting their views, but also to highlight any others areas which came up during the interview which needed to be explicitly addressed and explored. It also provided an opportunity for the researcher to review their performance and gain experience in the setting.

Drawing on the notion of intersubjectivity explored in Chapter Six, this chapter has expanded on the field of phenomenology in order to explore the hermeneutic implications of Heidegger and Merleau-Ponty's works. Through a discussion of Finlay's method of reflexive embodied empathy, this chapter provides a method for understanding the experience of the participants while enabling an examination of the researcher's intimate role in the construction of that interpretation. It identifies reflection as both an essential characteristic of flow experience, and as a tool for accessing that experience. Further, the chapter provides a rationale for the particular reflective methods involved within the research process, that of stream-of-

consciousness writing and semi-structured interview, and their function to enable a hermeneutic cyclical process of understanding.

Chapter Eight: Technologically Embodied Flow

This chapter discusses the various uses of technology within performance, and the particular embodied relation of the technology to the body. Performance practitioner Susan Kozel's research is identified for its similarities to this PhD research, in relation to dance, technology and the use of phenomenology as a methodology. In unpicking the differences between Kozel's and this PhD research, the area of embodied technics as defined by prominent philosophy of technology theorist Don Ihde is discussed. The particular methods for developing the technology in relation to the performer are then discussed identifying to what extent its use can be considered embodied.

8.1 Digital technology

Technology is an increasingly prevalent area of study for many dance and performance academics (Birringer, 1998, 2000; Broadhurst, 2006, 2007; Broadhurst and Machon, 2006; Carver and Beardon, 2004; Dixon, 2007; Gray, 1989, Macel, 2007; Valverde, 2002). Much of the research is from a performance/dance artists' perspective and addresses technology in terms of aesthetic, creative practice as well as developing new theories on embodiment and identity in a virtual world. Much of the writing reviews the many practitioners and companies who work within dance/performance and technology. However, there are many different relationships between performance and technology encapsulated in the various writings.

A discussion of these relations includes an analysis of the varying digital performance practices, such as: visualization, avatar performance, robotics and prosthetics, and telematics, as well as digital performance documentation. Some examples are discussed below, however, it is not within the scope of the study to provide an extensive review of the performance practices and corresponding performance practitioners who involve technology within their work. For further information, refer to Steve Dixon's *Digital performance: a history of new media in theatre, dance, performance art, and installation* (2007), which provides an introduction to the theories and practices surrounding performance and technology since the ancient Greek period through to the present day.

Visualization practices are employed in works by The Builders Association (1996, 2000, 2002, 2005, 2012), Troika Ranch (2000, 2003, 2004, 2006, 2009), Merce Cunningham (1999) and Carol Brown (2006a, 2006b, 2007, 2011) among others, in which innovative visualization technologies are developed to compliment stage performance. A related vein of research delves into the virtual performances of the mediated body, including works by Sita Popat and Scott Palmer (2006, 2007, 2008a). These researcher/practitioners create works which draw on the interrelationships between performers, operators and computers, and the role of technology as other. Their research thus aims to explicate the problems of such practices and develop technologies as a tool for innovation within creative practice.

Popat and Palmer have also created works exploring avatars (2008b) among other practitioners, such as Lynn Hershman and Stelarc with avatar performances within SecondLife a 3D virtual world. Hershman's *Roberta Breitmore* (1974-1978), originally a 'real world' constructed persona, was developed into a character in SecondLife (2006). The character was adopted by Hershman, and while insisting that the avatar was 'her own woman', they were inextricably linked. Similarly, Stelarc's *Prosthetic head* (2003) was a human like avatar of Stelarc's own head.

Stelarc, a performance artist based at Brunel University, is also interested in prosthetics and robotics, a small area of research, in which he “probes the limitations of the body and discusses ways of extending the body's capabilities through technology, such as his Third Hand mechanism. Prosthetic devices, robotic structures and body-machine are part of this unique performance artist's vision of our future.” (Stelarc, 1991, p. 691).

The area of telematics addresses virtual spaces and simultaneous presence across numerous spaces. A key practitioner in this area is Paul Sermon (1992, 1993, 2009, 2010, 2011). Paul Sermon's work *Telematic dreaming* (1992) explores human interaction, where digital technology and performing bodies are combined to create physically intimate spaces through virtuality.

“Telematic Dreaming” deliberately plays with the ambiguous connotations of a bed as a telepresent projection surface. The psychological complexity of the object dissolves the geographical distance and technology involved in the complete ISDN installation. The ability to exist outside of the users own space and time is created by an alarmingly real sense of touch that is enhanced by the context of the bed and caused by an acute shift of senses in the telematic space.

(Sermon, no date)

Another area of research within performance looks specifically at the use of technologies in documenting the embodied creative process and understanding relations between choreographer, performer and audience, these include research by Helen Bailey (Bailey, 2009; Bailey *et al.*, 2008, 2009a, 2009b). Helen Bailey's e-Dance Project explores the use of e-Science tools and methods for dance and performance. Specifically, e-Dance develops new approaches to choreographic composition and process. Other research in documentation includes the use of technology in archiving performance, and this includes the work of Sarah Whatley (2013a, 2013b, 2013c).

The final area of research within dance and technology to be discussed also addresses phenomenology as an approach to understanding the

embodied being in technological practices. There are very few studies concerning all three areas of research: phenomenology, dance and technology. Sarah Rubidge touched on this area in a paper presented at the Laban Centre London (1998) however her paper addressed a phenomenology of dance and only references technology in the description of her works. Susan Broadhurst, Professor of Performance and Technology also addresses this topic in her latest article, 'Merleau-Ponty and neuroaesthetics: two approaches to performance and technology,' (2012). However, these ideas of interdisciplinarity are developed further by Susan Kozel in her key work *Closer: performance, technologies, phenomenology* (2007) where she looks at a re-working of Merleau-Ponty's philosophy of phenomenology based on a reflection of the experience of designing and performing with new technologies.

Kozel's research addresses each area of the research identified in this thesis. For this reason, it is necessary to explore the similarities and differences between this current PhD research and Kozel's work in order to provide an explanation of the approach taken in this thesis. Both this thesis and Kozel's work ultimately takes the nature of practice as its central focus; "[e]choing the worn wisdom that art reveals life, the premise of this book is that the dance or performance studio is a hothouse for understanding wider social engagements..." (Kozel, 2007, p. xiv). Dance practice is a form of knowledge, embodied and tacit, as described by the dance phenomenologists, Sheets-Johnstone and Fraleigh. It is thus always from dance that this PhD research is situated.

Both sets of research also incorporate artistic practice as a research methodology. However Kozel reveals that it is through the creative outcomes of her performances that new knowledge is gained; throughout her book, a full understanding can only be obtained with direct reference to the practical outcome.

I was establishing my method for conducting phenomenological analyses, a method that would grow and change somewhat over the years but would always be indebted to the core

observational and philosophical practices birthed on the bed
(quite literally) of this telematic installation.

(Ibid, p. 88).

Within this thesis, however, whilst including practice as an integral part of the method, it does not require the inclusion of an artistic artefact to advance knowledge. The primary focus of the research is to advance knowledge about practice. The doctoral thesis that has emerged from this research does not include artefacts as part of the submission, though practice is an integral part of its method, as discussed in Chapter Two.

Kozel's understanding of the body of the dancer as the site of discovery reflects the stance which the PhD research takes regarding experience as a form of knowledge: "[t]he simple point to be made is that the body of the dancer is the site of discovery and what is discovered may shed light beyond the seemingly arcane space of the studio" (Ibid, pp. xiv-xv). Kozel draws on phenomenology to define a qualitative approach to the lived experience; "[a]s a method, phenomenology involves a return to lived experience, a listening to the senses and insights that arrive obliquely, unbidden in the midst of movement experiments or quite simply in the midst of life..." (Ibid, p. xvi). However, Kozel continues to say that these sensations emerge directly from the experience of being in computational systems.

Phenomenology, in short, allows me to respect these sensations and inner voices, these unformed ideas, thoughts, or images that emerge directly from the experience of being in computational systems like telematics, motion capture, or networked wearable computing.

(Ibid, p. xvi)

For the focus of this thesis, phenomenology serves to describe the experience of flow, technology is a tool which is applied to capture this experience. The data gathered becomes a primary text and the researcher's relationship with the technology is data driven rather than experientially driven. However, the following section discusses technology as an embodied technology, drawing on the of Kozel, in order to assess

the extent to which the motion capture technologies can be considered embodied in relation to the participants of this research.

8.2 Embodied technology

The phenomenological concern with technology began with Heidegger's article 'The question concerning technology' (1954b) but has been developed by numerous theorists, particularly in relation to embodiment. Philosophy of technology theorist, Don Ihde (b. 1934), has written extensively on the topic of embodied relations within technology as well as developing a theory of post-phenomenology which addresses the plurality of experience defined by the post-modernists (1990, 1993, 2002, 2010a, 2010b). His work has been critiqued and extended by theorists such as Philip Brey (2000) and Helena De Preester (2010) who argue for a closer inspection of phenomenology.

As discussed in Chapter Three, an individual learns and understands because they inhabit their body; for digital technology, "this has meant a continued re-negotiation of the physical/ digital divide." (Farr, Price and Jewitt, 2012, p. 5). In many human/ technology relations interaction between bodily and digital information continues to blur the boundaries, with 'embodied technologies' increasing in their use and application. The question, therefore, regarding the necessity of the body, as discussed in Chapter Seven, is vital when considering the virtual other. Already implied in the discussion of Kozel's research is the empathic relationship between self and technology;

When I encounter my digital self I discover that it is not simply me. The relation between myself and the figure I animate is as chiasmic as the seeing-seen, the touching-touched. It is me, because it is animated by my movement, but it is also other because it is separated from me by the thickness of the space between us and because it moves around and looks back at me – I am the one wearing the motion capture markers, the animation is projected onto a surface next to me, we are the same but we are different in space and in dynamic form.

(Kozel, 2007, p. 239)

The virtual body is thus encountered through a re-negotiation of corporeality, where a continuous interchange between bodies and technologies allows for interaction.

A philosophical understanding of embodied technology can be approached through Don Ihde's theory of 'embodied technics.' Ihde's theory of embodied technics is based largely on his understanding of Merleau-Ponty's phenomenology, citing many of Merleau-Ponty's examples within his own writing. For Ihde, the human/ technology embodiment relation reflects the way in which an individual engages in the world by perceiving through such technologies and thus the way this perception transforms an individual's perceptual and bodily sense. For Ihde, there are two important components to embodied technics.

The first characteristic of "the embodiment relation can be more precisely described as one in which the technology becomes maximally "transparent." It is, as it were, taken into my own perceptual-bodily self experience" (Ihde, 1990, p. 73). In this relation, the individual embodies the technology so that the individual experiences the world directly through the technology, as in Ihde's example of the glasses:

(I – glasses) – world
My glasses become part of the way I ordinarily experience my
surrounding, they "withdraw" and are barely noticed.

(Ibid, p. 73)

This, Ihde states, can be applied to all sense relations within the world, drawing on Merleau-Ponty's examples of the blind man's cane and the automobile. In order for the technology to 'withdraw' however, the technology needs to be 'good;' if, for example the rim of the glasses was too thick, it may impede on an individual's vision and thus their experience of the world.

In each of the examples, however, a second characteristic is present, that is the ability the technology must have in extending an individual's bodily abilities. Ihde notes a "double desire," on the one hand "a wish for *total transparency*, total embodiment, for the technology to truly "become me""

(Ibid, p. 75). On the other hand, “the desire to have the power, the transformation that the technology makes available.” (Ibid, p. 75). He believes this ‘double desire’ both acknowledges the positive role technology has in experiencing the world, yet rejects the essential nature of the technology by dismissing its presence.

Critics of Ihde’s embodied technics, however, suggest many of his examples do not fit his definition of embodiment relations as instruments to better perceive the world. Ihde, in his example of the car does not address the issue that while the individual’s bodily capabilities may be extended, their experience of the world is not tacitly embodied; “although the driver of the car may have a tacit understanding of the location of the car relative to structures in the environment, it is not normally the case that the driver can feel these structures through the fender of the car.” (Brey, 2000, p. 48).

Brey’s argument is that:

[A]n embodied technology is a technology that is incorporated into one’s body schema, which implies that it becomes part of one’s bodily space (Merleau-Ponty’s ‘space of situation’). It then becomes an integral part of one’s repertoire of motor or perceptual skills, and serves as a medium through which motor or perceptual functions, or both, are expressed. Perceptual functions that are mediated are either visual, aural, or tactile functions. Motor functions that are mediated are either navigational functions or interactive functions (or both). As an artefact becomes incorporated into one’s repertoire of skills, it often, though not invariably, enhances these skills. That is, it often extends the ‘potentialities’ of the body schema, and consequently what the body, as mediated by the artefact it incorporates, is able to affect or perceive in its environment.

(Ibid, p. 55)

Here, Brey draws on Merleau-Ponty’s theory of the body and the body schema as capable of incorporating other artefacts into it.

For Brey, perceptual embodiment is the only type of embodiment expressed by Ihde. The three senses cited above are mediated through the technology, and an individual’s perceptual skills are exercised through the technology. For example, sight can be mediated through eye glasses and visual perception exercised; hearing can be mediated through hearing

aids, and aural perception is exercised, and touch can be mediated through the blind man's cane, and tactile perception is exercised. In these instances the experience of an individual's world is mediated through some technological artefact.

Motor embodiment, for Brey, addresses "[a]rtifacts that mediate *motor skills* [which] become part of the body schema by becoming a medium through which motor skills are expressed." (Ibid, p. 53). As referenced above, these skills can be mediated in at least two ways; navigationally and interactively. Navigational skills can be mediated through the artefact by incorporating the artefact into the individual's body schema and thus knowing tacitly where they are in relation to the environment, examples include the car, which enlarges an individual's body schema. Interactive skills can be mediated by technology when "one performs actions on the environment with a tool that is embodied within one's body schema." (Ibid, p. 54). These tools, such as the hammer, the remote control and the gun, enable an individual to act on the world.

Brey described the interactive artefacts as mostly hand-held, however, within Susan Kozel's research, it could be argued that the motion capture system acts on the digital environment in which an individual's avatar exists. For Kozel this was a two-way interaction in which the avatar entered into an affective relationship with her:

I entered into a duet with the pile of cubes. My movement gave it life, but it was more than my movement. The pile of cubes had a spark of autonomy: it was cheeky, it experienced pain, indecision, and pathos. I found myself reacting to it as if it were a life-form.

(Kozel, 2007, p. 227)

This affective interaction, for Kozel, enabled an experience of self as 'other,' "intercorporeal exchanges across beings of differing materiality." (Ibid, p. 230).

8.3 Technology as 'other'

This experience of technology as 'other' is common in digital performance literature. Steve Dixon in his *Digital performance: a history of new media in theatre, dance, performance art, and installation* (2007), writes about the 'digital double,' a simultaneously present 'mediated' performer. Dixon distinguishes between four types of digital double; as reflection, alter-ego, spiritual emanation and manipulable mannequin. He does acknowledge, however, there may be some cross-over; "that the double is by nature, a mysterious and capricious figure that may sometimes challenge and traverse neat boundaries." (p. 244).

As reflection, the digital double is created where the image of the beholder is the central focus of the digital environment; as a technological mirror. Dixon draws on numerous examples, including Blast Theory's *10 backwards* (1999) in which the central character 'Niki' attempts to exactly reflect her recorded herself; "Niki uses digital video as an instrument for self-analysis, but for her the technological duplicate becomes the "real" that she must painstakingly copy and emulate." (Dixon, 2007, pp. 247-248). The second category; digital double as alter-ego address the doubles ability to manifest the multiple "underlying personalities of the performing subject." (Ibid, p. 250). Such as in Dixon's own work *Chameleon's 4: the doors of serenity* (2002) by The Chameleons Group. A performance in which Dixon plays a cyborg who enters into conversation with two digital doubles, each with their own personality.

The double as spiritual emanation is addressed in works such as igloo's *Viking shoppers* (1999) where live video recordings are converted into the number and letter symbols of ASCII computer code. These "[d]igital doubles representing spiritual emanations or incarnations of the body relate to notions of ghosts, astral bodies, out-of-body experiences, and soul projection." (Ibid, p. 254). The final category, digital double as manipulable mannequin, Dixon relates to computer generated avatars that act as a double of the live performer, and he suggests features strongly in

dance performance. Here, he references motion capture technology which “renders a manipulable double of the dancer onto the computer screen where it can be further modified and represented in performance.” (Ibid, p. 266).

While the use of motion capture in this study is different to that of Kozel’s, both fit into this category of manipulable mannequin. For Dixon, as for Kozel, each of the categories are examples of digital artefacts which are present in performance. Returning to Brey’s articulation of embodiment relations, the use of motion capture in this study, as a means of capturing embodied experience, falls into both an interactive motor embodiment, and a further category he defined as cognitive embodiment. In terms of the interactive embodiment, unlike Kozel’s experience, the interaction is one way, for the dancers do not encounter their digital double, however, it is still rendered for manipulation.

The cognitive embodiment which Brey addresses enables an extension of “cognitive abilities, such as abstract thought, memory, problem solving, and language use.” (Brey, 2000, p. 55). However, for Brey, these cognitive artefacts, such as the calculator, through their embodied use, transform the cognitive task “into a perceptual and motor task.” (Ibid, p. 55). It is only through interaction with the technological artefact that cognition becomes embodied. It could be argued however, that another cognitive embodiment relation could be manifested, in which “cognitive artefacts... that are able to represent, store, retrieve, and manipulate information” (Ibid, p. 55) mediate embodied cognitive skills, such as improvisation which demonstrates knowledge in the body, articulated through motor skills.

While Ihde’s definition of the embodied relations has been expanded by Brey, with regard to motor and cognitive skills, it could be argued that the two characteristics of embodied technology, for Ihde, remain. As demonstrated above, the motion capture technologies used in this research enable the mediation of an individuals embodied cognitive abilities, which, through its ability to store and manipulate the information

enables interaction in the world, and in this case, with the 'other' mind of the researcher. This links to Ihde's characteristic that the technology must extend an individual's capabilities. The next section addresses the first characteristic Ihde identified, that of making the technology transparent.

8.4 Motion capture

During the improvisation workshops the dancers were asked to wear a motion capture suit consisting of a lycra all-in-one, close fitting garment with Velcro attachments for reflective markers on the joints of the body. Ten cameras were located in the motion capture suite in specific positions in order to triangulate the 3D position of the body, from the markers, using infra-red sensors. These motion capture workshops were conducted at Bournemouth University by Zhidong Xiao, however, prior to this, during a trial phase of the investigation, the motion capture system at the University of Bedfordshire was used. From this point onward, this phase will be referred to as the motion capture phase, with the work done at Bournemouth referred to as the data collection phase. During the motion capture phase it was essential to understand the role of the suit in both the capturing of the data and in its ability to affect the dancers' movement, and thus chances of achieving flow.

It was important that the suit should not restrict the dancer allowing for normal movement activity, however, must also be utilised to get the best possible data for analysis. In many trial sessions, the placement, number and size of markers was addressed as well as the particular ways in which the markers could be attached, also addressing the material of the suit. In the very first session in the suit, the dancers were asked to improvise freely exploring the feel of the suit but also to challenge the suit in its ability to remain comfortable and versatile and for the markers to remain attached.

The first suit consisted solely of plain black, tight fitting stretch yoga pants and a long sleeved top. The markers, (12.5mm), were attached using specially designed double sided stickers, they were also placed using the

Helen Hayes marker set placement model in the Motion Analysis manual. In this template (Figure 9 below) there are twenty-seven markers attached to both the joints and the bones of the limbs. In this configuration the dancers found that certain markers caused considerable pain, particularly the markers on the shins and they found themselves avoiding floor based movement. Markers would fly off the body, or be left behind on the floor when moving across the floor.

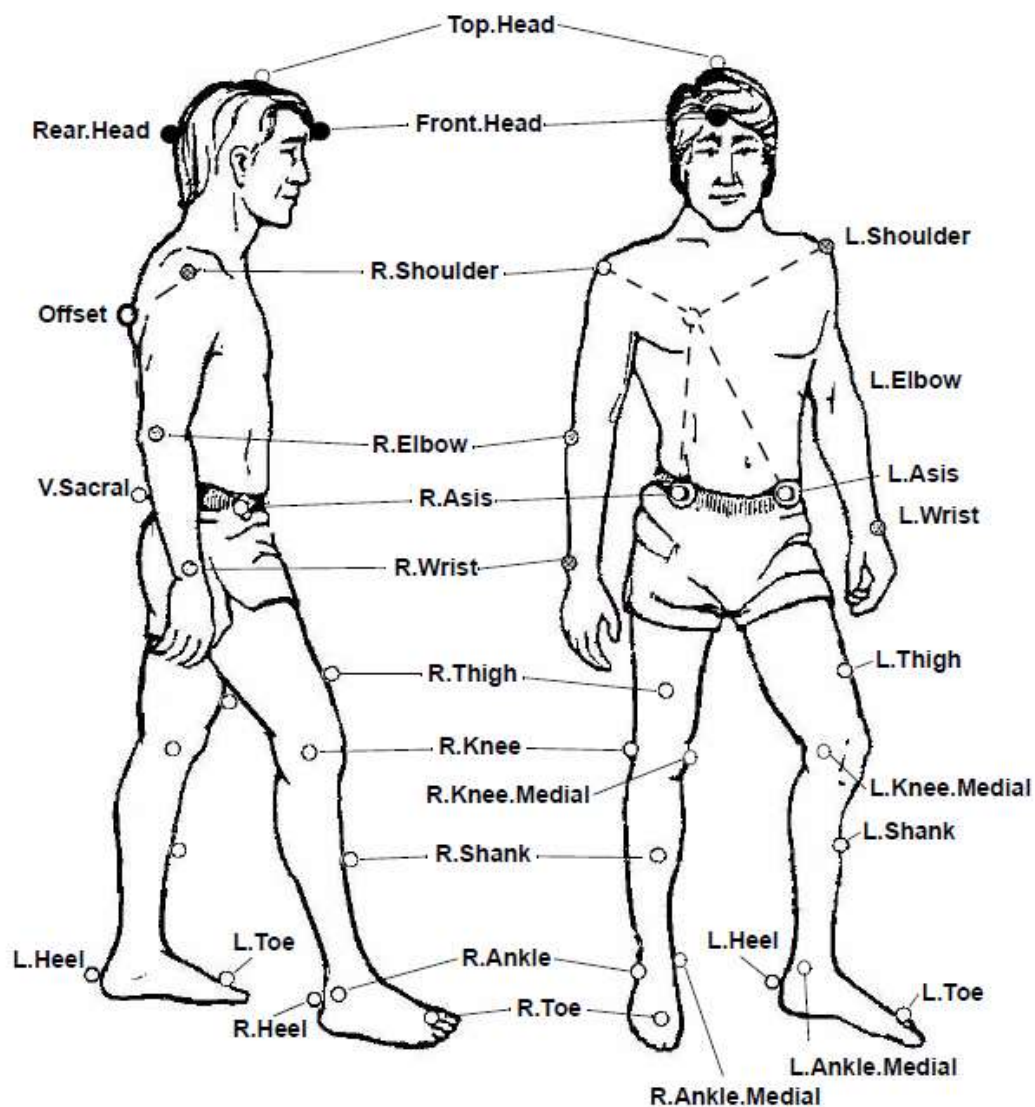


Figure 9: Helen Hayes marker set marker placement (Motion Analysis, 2007)

In response, several changes were made; initially smaller markers were used (9.5mm) which were closer to the body with softer bases, while this lessened the pain, certain markers were still problematic, and also

continued to dis-attach themselves from the body. At that point two further changes were made, the number of markers was reduced to nineteen in order to attempt to relieve some of the more painful positions while on the floor, and the method of attachment was altered. Heavy duty Velcro strips were fixed on each marker with the complimentary soft looped side attached to the clothing.

With the reduction of the markers, the outline of the body on the screen also became more perceptible; the reason for this is discussed in greater detail in Chapter Nine. However, due to the smaller size of the markers the dots on the screen often vanished and greater 'noise' was created (additional dots often appeared as outliers to the body). Due to the reduction and altered position of the markers, the larger markers were trialled once more, and the positions of the markers refined further. The positioning however, was obviously dependent on the individual, this meant the placement of the Velcro strips attached to the suit needed to account for the differing bodies of the dancers, however, the more strip attached, the lesser the flexibility of the material.

A process, then, of trial and error began in trying to find material which the hooked Velcro could attach directly onto. While these suits, utilising Velcro attachments, do exist for many motion capture systems, the expense, at that point, precluded their use. However, a more than adequate alternative was found in the use of an all-in-one body stocking made of the same material as tights and very effective for the Velcro attachments. At this point a final trial phase was used, which required a template range of motion to be captured prior to the improvisation workshop.

This template and then subsequent data needed to be cleaned by ensuring that every marker in every frame, of which there were 200 per second, needed to be identified as the same 'right inside knee', for example. Unfortunately, due to lack of specialist skill and knowledge, the use of the University of Bedfordshire's system had to be abandoned. At this point, given the knowledge gained thus far, a more suitable location

was selected, at Bournemouth University due to their specialist knowledge of the system and their use of lycra suit with Velcro attachments.

Throughout the motion capture phase, the technologies were adjusted in order to reduce their impact on the dancers and thus render them 'transparent' to the dancers. This was in dialogue with the second characteristic of embodied relations in regards to extending the cognitive embodied capabilities of the dancers. While adjustments to the markers size made transparency for the dancer greater, it also made the capture more problematic. The resolve came with adjustment of the placement of the markers, which rendered the size of the markers irrelevant. The motion capture system can thus be considered an embodied technology in its ability to extend the dancers embodied cognition in the act of improvising, while appearing transparent to the dancers in order to not impinge on their experience of flow.

PART FOUR: READING FLOW

Chapter Nine: Interpreting Flow

Within this chapter a discussion of the use of the visualizations within the research project is provided. Drawing from the embodied motion capture technologies, the visualizations are argued to provide a form of evidence of the body, rather than a form of illustration. The visualizations are presentational rather than representational and are closely aligned to the field of visualization within science and in particular, the disciplinary subset of computer science. Don Ihde, is a forerunner of this field, who, extending his research on embodied technics, defines another human/technology relation called hermeneutic technics. Ihde's theories on science's visualism and hermeneutic technics are discussed in relation to three of his key texts on this field. While these theories were developed over two decades ago, they have received little critique. Rather, he has received wide praise from fellow colleagues particularly within the Society for Philosophy and Technology (STP), most notably, from Carl Mitcham, a philosopher of technology at the Colorado School of Mines who states:

Ihde not only wrote the first monograph on philosophy of technology in English, he has also produced the most extensive corpus devoted to the subject and has established a book series devoted to philosophy of technology.

(1994, p. 78).

The scientific view of visualism is one developed by Don Ihde, and is apparent in its ability to "produce, display and reiterate what counts for evidence in visual form" (Ihde, 2002, p. 37). In particular, Ihde refers to the interpretative nature of certain technologies, regarding pattern recognition and discusses how such technologies can be used to interpret the

behaviour of a human. Ihde expands on these ideas in three of his volumes; *Technology and the lifeworld: from garden to Earth* (1990), *Expanding hermeneutics: visualism in science* (1998) and *Bodies in technology* (2002).

The methodology for interpreting the visualizations employed in this study arises from a hermeneutics of technology or ‘hermeneutic technics’ as defined by Don Ihde (1990). Hermeneutics, as discussed in Chapter Six, can be described as a theory of interpretation, and therefore hermeneutic technics, as the interpretative relationship between humans/technology. This is different to the empathetic relationship revealed in embodied technologies, such as with a pair of glasses in which the technology becomes transparent in order for the wearer to experience their surroundings. In the hermeneutic relationship, “the technology functions as an immediate referent to something beyond itself.” (Introna, 2005).

9.1 Expanding hermeneutics

Ihde’s *Expanding hermeneutics* (1998) begins with a history of hermeneutics within Greek philosophy and theological studies, before moving to a discussion of a more recent expansion of hermeneutics within science. He claims the two key proponents of this work are Friedrich Schleiermacher (1768-1834) and Wilhelm Dilthey (1833-1911). He refers to Schleiermacher, in answering the challenge of scientific criticism to transform the predominant theological hermeneutics into a more general hermeneutics, and Dilthey, as identifying hermeneutics as a possible foundation for science with regards to the human sciences. In both cases, however, the focus of their research regarded the “principles of “understanding” or interpretation [which] were differentiated from the natural sciences and principles of “explanation.”” (Ihde, 1998, p. 39).

Ihde goes on to discuss the expansion of hermeneutics with regard to phenomenology before identifying a new trajectory and expansion in the twentieth century within the realm of science and technology. Here, Ihde cites the first *Conference on Hermeneutics and Science* in 1993, which he

attended, and the apparent opposing approaches which arose from that conference. On the one side were theorists such as Karl Otto Apel and Dagfinn Føllesdal who argued that “one could have a *hermeneutic history of science*, but one could not have a *hermeneutics of science or scientific objects*” (Ibid. p. 40). On the other side, Ihde, Robert Crease and others, argued that there was indeed a hermeneutics of science “which included hermeneutic analysis of scientific products and of technological artifacts.” (Ibid. p. 40).

Ihde’s argument was that hermeneutics could be extended into the sciences through application of a phenomenological hermeneutic approach. In particular, Ihde draws on Heidegger’s ontology as essentially hermeneutic, but also draws on Merleau-Ponty with regard to “*perception, praxis, and embodiment.*” (Ibid. p. 40). He argues that the phenomenological hermeneutic model is a perspective which accounts for *what* is observed, but relative to the situation or position of the observer, and as such a phenomenological hermeneutic analysis must look at the realm of human-technology *relations*. (Ibid. p. 46).

Ihde articulates three structural aspects to the phenomenological hermeneutic analysis of human-technology relations. Firstly, that “all technologies are *non-neutral*,” by that he means that with every use of technology, an individual’s experience of the world is altered or mediated. Secondly, that this mediation has a particular structure to it, which he terms “the magnification-reduction structure,” in which an individual’s experience is both extended and reduced by the technology. In his example of knocking an apple from a tree with a stick, the technology (the stick) extends his reach, but also reduces his tactile experience of picking the apple from the tree. Finally, thirdly, he argues that while universal for all technologies, “each technology displays a different pattern of amplification-reduction.” (Ibid. p. 47).

9.2 Technology and the lifeworld

In *Technology and the lifeworld*, Ihde begins discussing hermeneutics in relation to writing. He argues interpretation is always the reading of *something*, such as the reading of something written, and that all writing requires technologies: “[w]riting is a technologically embedded form of language.” (Ihde, 1990, p. 81). Whether chalk and slate, pen and paper, or word processor and computer screen, writing requires technology to mediate language. However, this mediation is embodied; “[i]t implicates my body, but in certain distinctive ways.” (Ibid. p. 81).

Ihde refers to an example of a map, or ‘chart,’ which represents the landscape. In this instance, the map is read from a “miniaturized bird’s-eye perspective” (Ibid. p. 81) where the map refers to the landscape through isomorphic representation. However, unlike in embodied relations where the technology withdraws to become transparent, the map is the visual terminus. Ihde therefore argues for a different kind of transparency which he calls ‘representational transparency’ in which the map refers beyond itself to what it represents.

As discussed in Chapter Eight, Ihde describes the embodied relation thus:

(I – Technology) – World

where the technology becomes perceptually transparent to the individual in order for them to engage with the world. However, he articulates a different formulation within hermeneutic relations:

I – (Technology – World)

In this relation, the reading is dependent on the transparent connection between the instrument and the referent object.

To compound this new formulation, Ihde draws on an example of a nuclear power plant, in which no isomorphism exists between the object (the pile) and the control panel. The object referred to is also not immediately available to perception; there is “no face-to-face, independent access to

the pile or to much of the machinery involved.” (Ibid, p. 85). What is immediately perceived is the instrument panel itself, and thus “[i]t becomes the object of my micro-perception, although in the special sense of a hermeneutic transparency, I *read* the pile through it.” (Ibid, p. 86).

Ihde goes on to define a scale or ‘vertical trajectory’ of visual hermeneutic technics in relation to a ‘horizontal trajectory’ of visual embodied technics. He argues the embodied trajectory “only follows greater and greater degrees of magnification” (Ibid, p. 90) such as with the telescope and microscope, whereas the hermeneutic trajectory “rely upon quite deliberate hermeneutic transformations.” (Ibid, p. 90). At the origin of the hermeneutic/embodied axis sit spectacles, which enhance vision. Moving vertically along the hermeneutic trajectory Ihde identifies tinted glasses which transform what is seen to some degree.

Following in this trajectory are infrared glasses which “begin to modify the representation into a different, non-perceived “representation.”” (Ibid, p. 91). Included in this trajectory are heat-sensitive night scopes, enhancing a person’s heat radiation, which while still representative of the object, produce a non-ordinary form of visual representation. Ihde then references the spectrograph which has no resemblance to the star it represents, rather “the reader would have to know the language, the alphabet, that has coded the star.” (Ibid, p. 91). In these examples provided by Ihde, the structure of the hermeneutic technological relation provided in *Expanding hermeneutics* is apparent.

9.3 Bodies in technology

Ihde’s final work to be discussed, *Bodies in technology*, draws on the visual examples provided above in articulating ‘science’s visualism’ and returning to his articulation of a hermeneutics of science. Ihde argues that science’s preference for the visual is a cultural ‘habit’ rather than one born out of necessity. For example, Ihde identifies no physiological difference between seeing and hearing with regards to detecting duration and describes some of the original scientific practices which rely on whole-

bodied perception, such as in physical anthropology where “[i]nformed vision is employed along with tactility, bodily motility, and the rest of the interaction with the immediate environmental world of this situation.” (Ihde, 2002, p. 39).

Ihde argues that science’s visualism is far from the ‘natural’ way in which an individual engages in the world. He draws on Merleau-Ponty’s writing on synaesthesia to articulate his view that an individual’s “experience of some object that is seen is simultaneously and constantly also an experience that is structured by all the senses.” (Ibid, p. 38). Despite this, “visualization lies embedded in scientific practices.” (Ibid, p. 40). Ihde goes on to define the history of this shift to visualism as a modern concern, one which “is an enhancement of the visual over and above and often to the detriment of either full perceptual or nonvisual perceptions.” (Ibid, p. 41).

He begins with Leonardo Da Vinci and his reduction of anatomy to a structural and visual depiction of tendons, muscles and veins; these visualizations replaced a tactile and olfactory perception of anatomy. Ihde then examines Galileo and his discovery of the telescope which at the time were “heretofore unseen phenomena.” (Ibid, p. 42). Finally, he addresses the “rapid acceptance of photography” (Ibid, p. 42) which not only extended ordinary vision, but enabled the scientist to share and reproduce these visions:

Photography, not unlike the camera obscura, automatically reduced the object to an isomorphic and realistic fixed image on the photographic plate. And it accomplished this without subjectivity, as it were, by means of a mechanical process.

(Ibid, p. 43)

These examples describe both a vertical and horizontal trajectory of development in terms of both embodied and hermeneutic relations. The developments in twentieth century imaging technologies, such as the infrared, and ultraviolet visualization described in his previous text, are what he calls ‘second sight’: “[i]t not only enhances analog vision, it displaces it with a type of second sight. This second sight becomes a

unique, instrumentally constituted scientific object.” (Ibid, p. 47). In summary, visualizations, rather than simply being reductive in nature are essential to modern science in their omnipresence and dominance and ability to reproduce Gestalt visible features.

Within this study, digital visualization will be used as a representation of motion capture data in a non-textual form available for analysis. It could be argued, when viewing the digital visualizations of the captured motion, what an individual sees is the body it refers to, the limbs already suggested in the data points. This is supported by the research identified in Chapter Six regarding point-light display visualizations of human movement in which the individual is able to identify both human activity, such as walking, running and dancing, as well as emotional states. This in turn is supported by the neurological studies on empathy and action understanding.

Performance and technology theory has grown out of the numerous theoretical undertakings in technology and culture (Feather, 2004; Lunenfeld, 1999; Lyon, 2001; Murphie, 2003; Pepperell, 2009). Much of this research addresses the social and cultural implications which new technologies bring. Lyon discusses surveillance studies; surveillance is the observing of the behaviour of another person, usually covertly. The only difference between surveillance technologies and motion capture technologies is that the monitoring is usually known about or agreed to. Motion capture technologies allow for a surveillance of the body in order to read behaviour and movement patterns. The following sections will outline the key texts surrounding visualization practices and movement analysis.

9.4 Information visualization

Information visualization is the visualization of data; however, recently the field of information visualization has been expanded in regards to the representation of that data. Authors such as Kosara (2007), Lau and Vande Moere (2007), and Ramirez Gaviria (2008) have articulated a criteria for the classification of such visualizations, and there is an

emerging sense that these categories sit on an opposing scale between those which are data driven and easily readable and those which are concerned with more of an artistic representation of the data. Though terminology appears to differ, the sense of opposing representation is clear.

Kosara, for example, refers to the field of information visualization as scientific visualization, and defines a general criteria of such visualizations thus: it must be based on (non-visual) data, it should, at least, translate a set of data into visual form, “if the source data is an image and is used as an image in the result, it is not being visualized.” (Kosara, 2007); it must produce an image, the visualization must be the primary means of communication of the data; and the result must be readable and recognizable, the viewer must be able to understand the data represented through the visualization “even if that requires training and practice.” (Ibid).

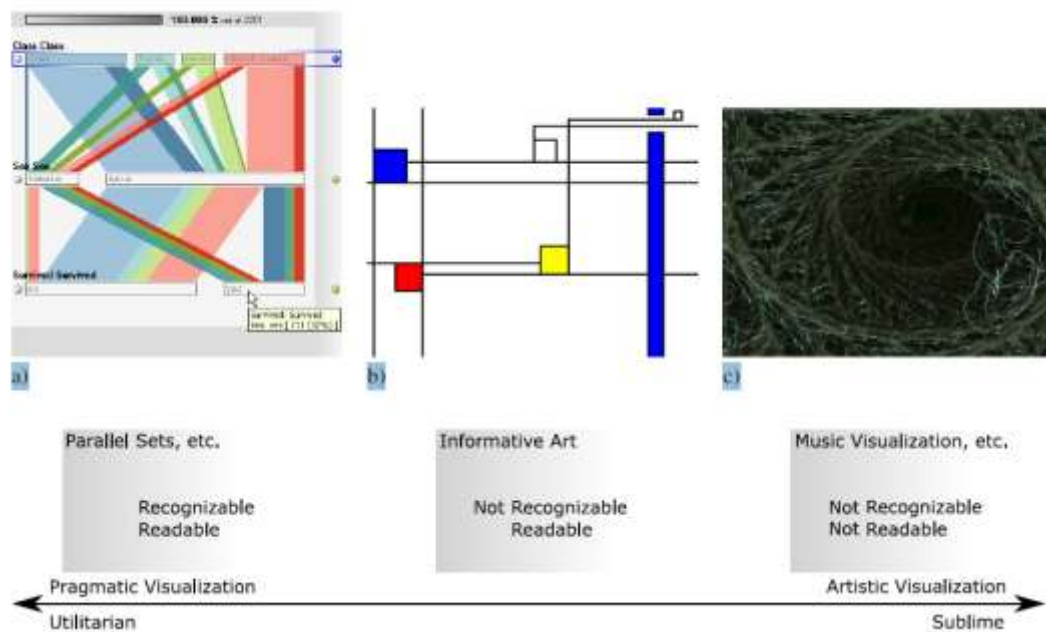


Figure 10: The gamut of data-based visualization (Kosara, 2007)

Information visualization for Kosara must come under what he terms ‘pragmatic visualization’ as opposed to ‘artistic visualization’. For Kosara, pragmatic visualizations are essentially utilitarian, user friendly, efficient and based on displaying readable information. Artistic visualizations on the

other hand are essentially 'sublime', not user friendly, and interested in visualizing a general 'concern' rather than the data. Above is an example of the scale of visualizations, as described by Kosara.

Lau and Moere, however, define several models for information visualization, taking the term information visualization to be the overarching field within which these categories sit. They term information aesthetic visualization as the opposite of the data driven type of visualization. On the one hand the direct, objective and extrinsic, used as a tool, and on the other, the interpretative, subjective and intrinsic, used as art. They also define further categories within information aesthetics, such as ambient visualization and informative art, and a separate category, social visualization which perhaps sits somewhere in the middle of the scale between the extrinsic and intrinsic visualization forms.

Ramirez Gaviria describes the split in terms of the functional versus the aesthetic describing them as functional and data driven or aesthetic, emotive and visceral. He also looks at the connection information visualization, as a field, has to art practices, and criticises how one field views the other, or rather their seemingly lack of consideration for the other.

Only occasionally do studies make a case for the implication that aesthetic information visualizations may have for contemporary art practices, and, in such demonstrations, reference is mostly made to the creation of novel forms of visualizations, without legitimate or informed observation of the complexity of artistic production and discourse.

(Ramirez Gaviria, 2008, p. 480)

In each of the three articles referenced above a clear divide is offered in terms of visualization practices, some include further categorization, others a critique of their role within science and art. The visualizations used in this thesis would come under the category of the pragmatic, data driven type, as while representing artistic practice, the visualizations themselves are used as tools for analysis. Readability is therefore key.

9.5 Visualizing Laban

In this section the literature will focus on those projects which aim to visualize human movement drawing on Laban's work in choreology, which has established a need for movement analysis both in dance and in virtual environments, for example in the animation of gaming characters. There are many studies which use technology as a tool for movement analysis (Badler, 1989; Becheiraz and Thalmann, 1996; Badler, Chi and Chopra, 1999; Chi *et al.*, 2000; Zhao, Costa and Badler, 2000; Loke, Larssen and Robertson, 2005; Zhao and Badler, 2005; Rett and Dias, 2007; Santos, Prado and Dias, 2009; Bartram and Nakatani, 2010; Pietrowicz *et al.*, 2010; Subyen *et al.*, 2011; Oliveira *et al.*, 2012).

This area of research is largely concerned with movement analysis from a technological perspective; the articles draw on both Laban's effort and shape theories and other non-verbal communication research (Argyle, 1988; Hall, 1973). However, the crux of the research concerns the technological interplay and the use of movement analysis in creating models for animated virtual actors or avatars. The articles focussing on Laban's work can be divided into three further categories: those which utilise it for animating computerised forms; those which use it for interpreting human movement (for use in robotics, for example); and those which use it for artistic purposes.

Within the first category, a collective of authors (Badler, Chi, Chopra, Costa, Zhao) have, over the years, developed a framework for animating computerised forms using Laban's Movement Analysis. In their 1999 article, Badler, Chi and Chopra develop a model which allows for the customisation of a character based on qualitative descriptors. In 2000, Chi, Costa, Zhao and Badler further develop the EMOTE model for generating 3D movement, here they also explore Lamb's work on flow in shape and focus their work on Laban and Lamb's effort and shape qualities.

In the second category, a few different authors have worked on developing models which allow interpretation of human movement. Rett and Dias

(2007) and Santos, Prado and Dias (2009) both explore Laban's work in order to facilitate empathy in robotic forms. In both of these uses, however, only a limited use of Laban's work is applied with regard to his work on the eight basic action drives. Also, while they both refer to whole body movement, they only track the hands and face. Loke, Larssen and Robertson (2005) use Laban's work to analyse the movement of interactive game players in order to develop the game design, however, the analysis is conducted by humans.

Finally, the last category sees some innovative uses of Laban's Movement Analysis, with regard to the creation of artistic artefacts. Pietrowicz *et al.* (2010) work with dancers to create performance in which dancers augment reality environments in real time based on 'full-body' movement articulations and sounds. However, as in the previous projects, only the wrist is tracked. They have, however, developed a system to input multimodal gesture before using Laban's Movement Analysis and learning algorithms to create visualizations. However, these visualization were not described. Subyen *et al.* (2012) also use Laban to create artistic visualizations. They use Laban's basic effort actions using a computer program called Effort Detect, to create a 'visaphor,' or visual metaphor, of the movement.

While this last category uses Laban's work to create visualizations, the purpose of both projects is artistic in nature rather than data driven as in this research. They also only apply a small area of Laban's work, largely addressing the eight action drives and limited effort and shape analysis, dismissing Lamb's research with regards to flow in shape. Finally, neither project addresses full-bodied movement, but instead draws on arm movements only. The aims of the visualizations, in this thesis, are to represent the two areas of movement analysis: choreutics and eukinetics, discussed previously in Chapter Four. Choreutics, or shape, can be visualized through adding a trajectory of 'past' movement to each data point in the way Lamb describes as that of vapour trails in the sky:

[W]e need to put ourselves in a position similar to that of a commentator reporting on an aircraft giving a stunt display. He would report that the aircraft was looping the loop, diving, gaining altitude, veering to the right or left, and so on... if the aeroplane's engine was leaving a vapour trail, we should see the shapes transcribed in the sky.

(Lamb, 1965, pp. 16-17)

After the data collection phase of the PhD research, the data points were reduced from the initial motion capture to just fourteen markers: the head; both shoulders; elbows; hands; the mid-back; the back of each hip; both knees; and both heels (see Figure 11).

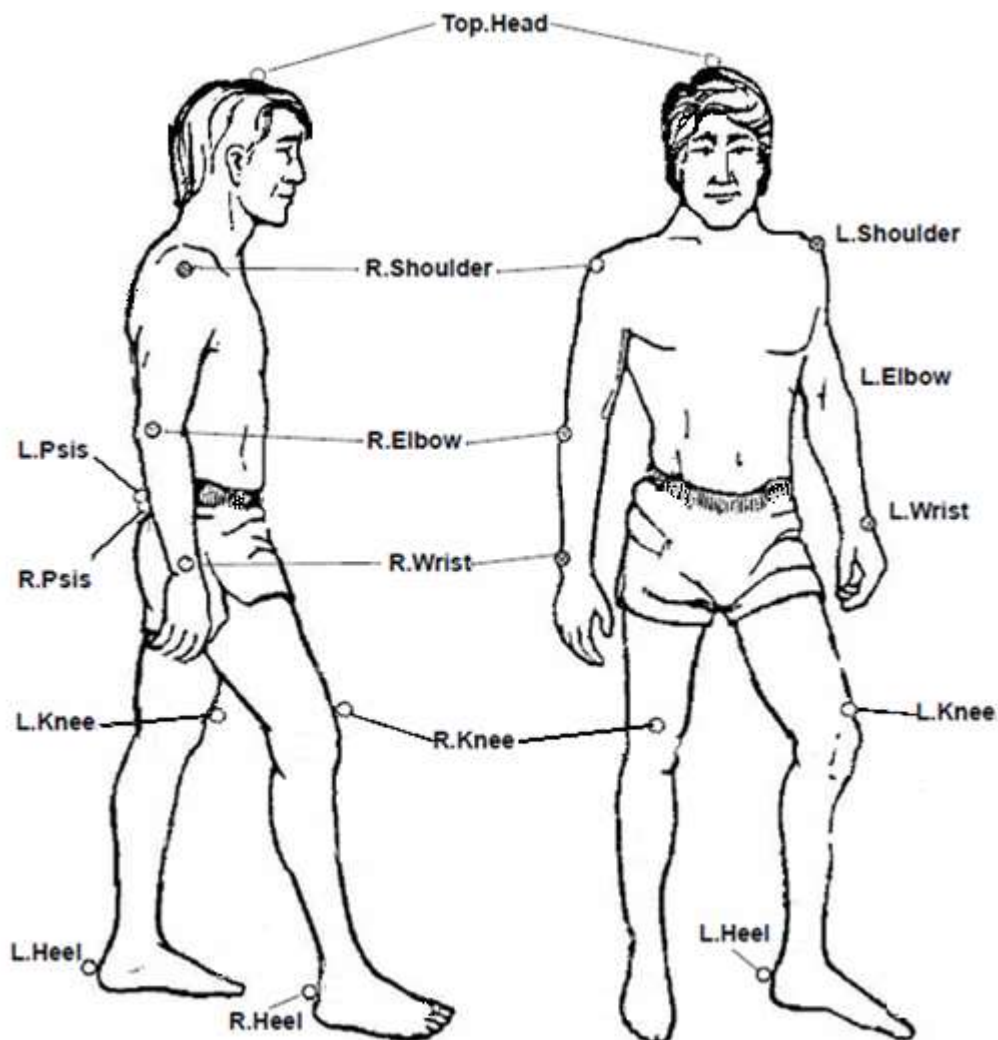


Figure 11: Visualized marker set marker placement adapted from Motion Analysis (2007)

The reduction of markers reflects research in the field of point-light animation, previously discussed in Chapter Six, with regards to belief in the identity of the observed stimuli. Press (2011) for example, suggests that “[b]elief about identity may have greater impact when there is less perceptual information.” (p. 1413). In this article, Press addresses two research projects which examined the effects of instructing participants that point-light stimuli were either human or computer generated on the motor neuron system. Stanley *et al.* (2007) found that belief did effect the activation of the mirror neuron system (see Chapter Six). However, in a similar study, Press *et al.* (2006) found no evidence of effects of belief, the difference between the two was the complexity of animation.

Laban’s second area of research, eukinetics, however, has different considerations for visualization, in terms of focus, pressure, time and flow (as per Lamb’s definitions), on a continuum between two extremes; directing/indirecting, increasing/decreasing, decelerating/accelerating and freeing/binding. Based on the work of Santos, Prado and Dias (2009) a justification can be made for the visualization of velocity and acceleration only, alongside the trajectories. In their study “features were chosen by interpreting the parameters of Laban Movement Analysis (LMA) through physical measurable entities that could describe them best” (p. 4987), as seen in their table below:

LMA Effort Qualities	Physical entities
<i>Time.sudden</i>	High acceleration , High velocity
<i>Time.sustained</i>	Low acceleration , Low velocity
<i>Space.direct</i>	Small curvature , Small angular velocity
<i>Space.indirect</i>	High curvature , High angular velocity
<i>Flow.free</i>	High curvature, High angular velocity
<i>Flow.bound</i>	Low acceleration, low velocity
<i>Weight.strong</i>	Muscle tension, Medium acceleration
<i>Weight.light</i>	Muscle relaxed

Figure 12: Initial hypothesis of correspondences between LMA effort qualities and physical entities (Santos, et al. 2009)

The entities in bold are those which presented a strong pattern for distinguishing the extremes of the effort qualities, however, unfortunately,

weight could not easily be defined as “there is no visual cue that could reflect muscle tension.” (Ibid, p. 4987). Based on this, acceleration, velocity and curvature of movement are the only features required for describing the three other qualities. Curvature of movement is already visualized in the trajectories of the data points, so only velocity and acceleration remain.

Drawing on the pragmatic approaches to visualization and the concern for those visualizations to be easily readable and recognizable, the visualizations in this thesis were projected to use a colour scale to represent velocity. Yellow, for example could be used to represent high velocity movements, moving through red to blue for low velocity movements. Velocity would be seen in the colour of the trajectory, and acceleration would be noted in the speed of the colour change from blue to yellow as well as the increasing length of trajectory. The finalised visualizations are discussed in Chapter Ten, with an analysis of the process of refinement.

In conclusion, Ihde’s work in the field of visualism and his theories on hermeneutic technics have informed the method by which the visualizations are analysed. The visualizations are considered to present the body in order to allow for a ‘reading’ and interpretation of the body. The visualizations are an example of the data driven type of information visualization in their capacity to evidence the motion capture data of the body. Further to this, the visualizations have been considered for their ‘readability’ and designed with the purpose of presenting the moments of flow in the body. The visualizations are both innovative in their application to flow and in their use of Laban for describing the movement of the whole body, as a tool for analysis.

Chapter Ten: Clarifying Flow

This chapter discusses the various stages of the practical method of the research. It details what happened, if that differed from what was planned, and what decisions were made through the process of doing. In this sense, it details not the decisions of the participants, but the decisions of the researcher and demonstrates the researcher's implicit 'know-how' (Nelson, 2009). The decision to include a practical method to the research was fundamental to the practice-as-research methodology discussed in Part One, providing fundamental methodological insight. While the practical is not necessary to the final research output, it has facilitated the advance of knowledge within the field, and provides practical testing for a new methodological approach to dance.

There were many stages to the practical research, which are essentially iterative. Beginning with the decisions for the workshops themselves, the various considerations made pre-workshop, including selection of dancers and design of workshops is considered, followed by a discussion of the first workshop phase and the changes made to the structure of the workshop. The second phase of workshops is then outlined regarding the use of the motion capture system, this addressed practical concerns regarding placement of markers, functionality of the suit and ease of data clean-up as well as aesthetic concerns regarding the display of markers. The results of these workshops are discussed before moving to the final data collection phase, and problems which arose on the day. This is followed by the visualization phase and the decisions made in clarifying the design.

10.1 Pre-workshop phase

Prior to the workshops, decisions needed to be made on the number of tasks used, the type of task used and the length of time for each task, as well as the type of warm-up. This phase, as previously discussed in Chapter Five, draws on the research on imagery. The type of tasks that were decided on prior to the workshop reflected the research in image based improvisatory movement tasks as a means of facilitating flow, and a week of workshops was initially decided on in which a range of image based tasks would be used. Within a workshop, the whole task might be given to dancers prior to starting, or it may be broken down, with further instructions given during the task. Initially, there was no time limit set to the tasks and the dancers were asked to finish when they felt it was appropriate. At the start of every workshop a yoga style warm-up was used, led by the researcher. The choice of this style of warm-up reflects the research into yoga, and the parallels drawn between the yogic practice of *Samadhi* and the experience of flow both with regards to Csikszentmihalyi's and Laban's research.

The plan for the workshop was to be open-ended allowing the dancers different ways to engage with the tasks, with little direction from the researcher. This was in order to clarify an appropriate structure for the workshops based on a trial and error format and in response to the dancers' daily feedback. The feedback was collected by journal, in which the dancers were asked to record their experiences of flow as well as through group discussion at the end of the day in order to clarify any problems with the tasks or format of the workshops. The rationale for collecting feedback from the dancers was to ensure that the set up for the workshop would facilitate a flow response. As flow is an essentially positive phenomenon, had the dancers experienced difficulties or felt uncomfortable during the workshops their chance of achieving flow would be reduced.

It is important to note that the dancers used in this phase were not used in the final data collection phase. This was in order that problems could be dealt with prior to the data collection phase, and that the dancers involved in the data collection phase would not have prior experience of the exact tasks used. For this reason, it was also decided that in the data collection phase, within the motion capture space, that the dancers would remain separate as only one dancer could be captured at a time and the researcher felt that in observing the workshop, the other dancer may be influenced both on hearing the task and on watching the other dancer's responses. It is the view of the researcher that prior experience of the task may elicit habitual responses to the task and alter the improvised nature of the task. Throughout this chapter, the dancers in this phase will be referred to as Dancer A and Dancer B.

10.2 Workshop phase

During the week long workshop phase, many changes were made to the structure, as noted in Chapter Five. After the first workshop it became clear that the unguided timing for the tasks was problematic, for both researcher and participant. The participants for example felt unsure when to stop dancing. At times they commented that they would continue to improvise past the time that they had initially lost interest in the task, either because the other dancer was still improvising or because they felt they had spent too short a time on it and persisted in the hope that it would aid the research.

I didn't like being given any amount of time as I couldn't judge how long I had been doing it. I didn't want to stop if I had only been going for a couple of minutes so I felt [Dancer B] and I were judging it from each other.

(Dancer A, 2011)

This notion of trying to provide the 'correct' response refers to the concept of 'demand characteristics,' in psychology, which involves "participants being aware of what the researcher is trying to investigate, or anticipates finding, and what this implies for how participants are expected to behave."

(McCambridge, de Bruin and Witton, 2012, p. 1). In order to prevent such a response, or such anxiety in the participant about the 'correct' length of time for improvising, differing times were used for the tasks, moving between three and ten minutes, in order to work out the most appropriate length of time. After discussion with the dancers it became clear that, the shorter three minute tasks were a good length when they had lost interest:

The 3 minute improv then the 3 min writing was a good time because it allowed us to get stuck into it... but didn't keep going for so long that we got a bit bored of it.

(Dancer B, 2011)

However, the dancers would have readily continued past the three minutes during the tasks in which they experienced greatest flow. It was thus decided that the tasks would function as a short introduction to the various images, in order that the dancers might identify one image which they would like to improvise for a longer period of time.

The exact tasks decided on out of the numerous tasks employed during the week long workshop phase came through discussions with the supervisory team. It was recognised that it was important to provide a variety of types of sensory image, including visual, tactile, kinaesthetic, and auditory, as well as different modes of engaging such as inner and outer imagery in which the image is located either within the body or on the surface of the body in addition to direct and indirect imagery, for as Franklin states: "[d]irect imagery is a nonverbal representation of an actual movement... Indirect imagery is metaphorical; an external event or object is projected onto and used to clarify a process or movement." (1996, p. 51). Six tasks were finalised which covered each of these categories, see Appendix A.

The use of music within the tasks was also a consideration. The initial music chosen had no vocal element and was of varying pace and tempo. The music was not selected for each task, but rather kept playing in the background on some of the days. After discussions with the dancers, it was perceived that they were not always aware of the music and did not

pay it any direct attention. They felt that it neither enhanced the moments of flow, nor detracted from them. There were concerns however, as to what degree the music influenced their improvisations in terms of dynamics, inadvertently or otherwise. It was therefore decided, that as there was no perceived positive outcome for the dancers, that music was not to be used within the data collection phase.

Finally, the dancers enjoyed being led through the yoga style warm-up by the researcher and articulated in discussions the effectiveness of the warm-up in both centring their attention and in warming up their bodies. The warm-up was perceived to enable them to bring their awareness to the task at hand and focus them for the workshop. This was important as, prior to the workshop, external concerns that engaged both the participants and the researcher came to the fore, and the warm-up enabled such distractions to dissipate. The effectiveness of the warm-up in terms of the warming and stretching of muscles and raising of heart rate was also well received.

10.3 Motion capture phase

The next phase began within the motion capture suite at the University of Bedfordshire. The motion capture phase itself lasted several months as each refinement required further testing and, often, further refining. There were also many stages to the motion capture phase, where often one problem needed to be resolved before the next stage could be embarked on. As articulated in, Chapter Eight, the results of this phase concluded in the data collection phase being undertaken elsewhere, as some of the problems encountered in this phase were beyond the capabilities of the researcher and the research environment and required further specialist input.

The motion capture phase began by considering the motion capture suit and its impact on the dancers. The process of selection is detailed in Chapter Eight; appropriate materials were found which allowed for free movement but also enabled stability for the markers. This stage was

based on a trial and error process, in the first instance the dancers wore the motion capture suits provided with stick on markers and it was only through the process of doing, that the suit was acknowledged as problematic. For example, in the first session the dancers were asked to improvise to the six set tasks and, in so doing, encountered problems with markers falling off or becoming stuck to the floor. This was resolved with the use of Velcro attached to the markers using heavy duty adhesive, and, the use of a full body hosiery garment, which the Velcro attached to (see Figure 13). This proved very successful.



Figure 13: Dancer 1 wearing hosiery suit with Velcro marker attachments

Another problem which arose through the process of doing was connected with the placement of the markers. Initially, the markers were placed

based on the Helen Hayes marker set placement model (as in Figure 9, p. 152). The Helen Hayes model was provided in the manual for the motion capture software, a program called *EVaRT* produced by Motion Analysis who developed the particular motion capture system used at the University of Bedfordshire. The placement model includes markers on the lower leg shank and upper thigh, as well as numerous markers on and around the joints. However, a problem arose with regards to the placement of the markers in relation to the movements performed by the dancers. For example, if a dancer chose to roll across the floor, the markers on the shank in particular became quite painful as they were pressed into the floor and the shin bone. The same applied with some of the other markers, such as the outer knee markers and the ankle markers.

Initially it was thought that the size and style of the marker was problematic; the marker was 12.5mm on a rubber pedestal which sat away from the skin. After ordering some 9.5mm markers on a soft leather base pad, the workshop was tried once more, however, the same issues ensued. While there are smaller markers (as small as 4mm), the already small size and closeness of the marker to the body caused further problems with regards to the capture. For example, it meant that certain markers became less visible to the six cameras and there was greater interference with the capture. The resolution came with the adjustment of the marker positions. After a period of trial and error, the number of markers were reduced and the marker positions fine-tuned which enabled the dancers to move freely on the floor without pain or fear of marker loss or damage. The resultant placement of markers can be seen in Figure 14, using nineteen markers rather than the twenty-seven recommended by the Hayes model. As a result of the new placement, larger markers were able to be used, without discomfort.

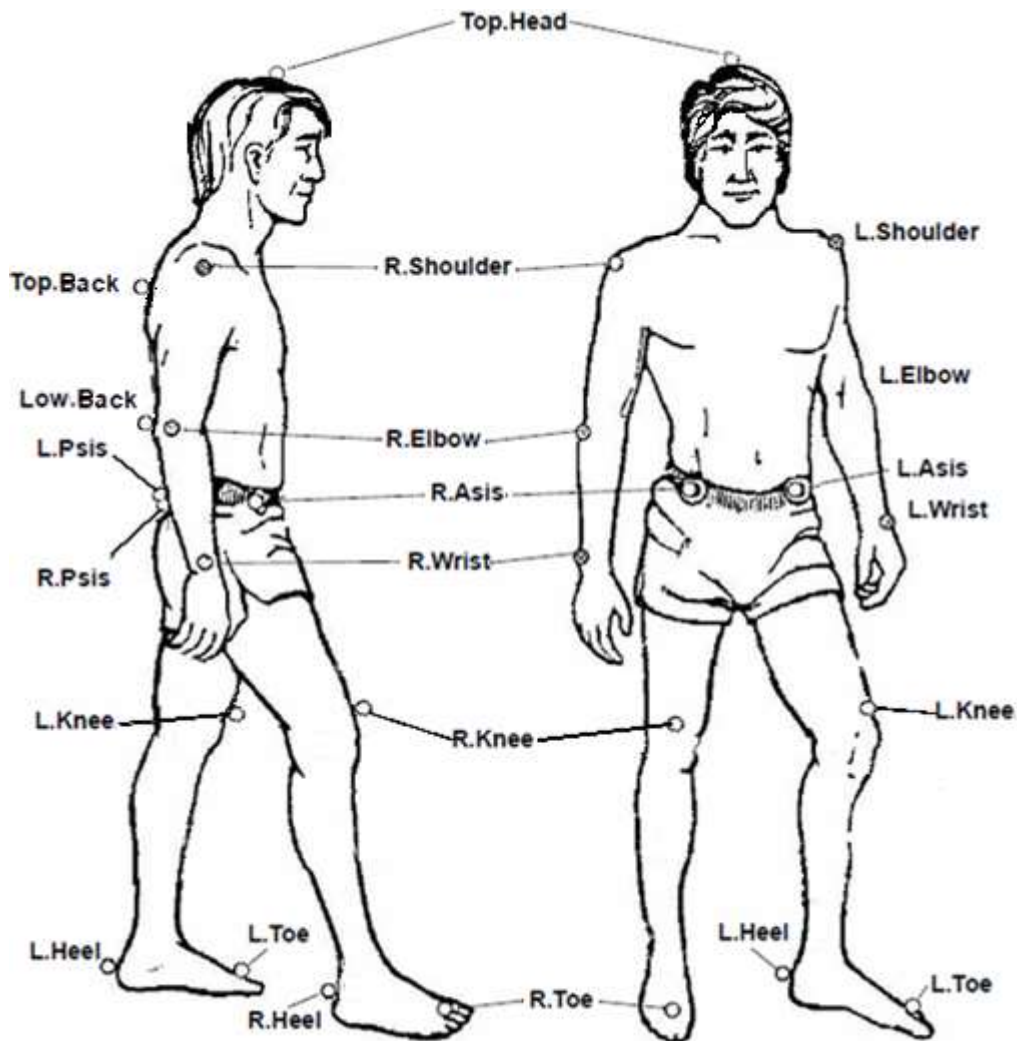


Figure 14: Final marker set marker placement adapted from *Motion Analysis* (2007)

The reduction of the markers was also a result of viewing the motion capture data. On viewing the initial twenty-seven markers, it became clear that some parts of the body were not well articulated in the EVaRT visualizations. As explained in Chapter Nine: Interpreting Flow, the reduction of markers enabled a clearer view of the body in motion. However, given the complexity of the movement, the markers could not be reduced to the final fourteen which were then visualised, as this proved problematic for data capture. For example, the fewer the markers the greater the impact of marker occlusion, thus, it was necessary to retain the extra markers on the back, hips and toes for the purposes of the data clean-up.

The data clean-up stage was the final stage of the motion capture phase, and the most problematic. Unfortunately, the task of identifying each of the markers in each of the 200 frames per second for each of the three minute tasks required specialist subject expertise beyond the scope of the project. Though certain techniques were developed for cleaning the data, the data was too problematic to be cleaned quickly, even for experienced lecturer and producer of motion capture, Zhidong Xiao at Bournemouth University. The reasons for this included the small number of cameras used, the small number of markers used, and problems with the calibration of the cameras at the University of Bedfordshire. This resulted in the motion capture work being undertaken at Bournemouth University by Xiao in a ten-camera suite with specially designed motion capture suit.

10.4 Data collection

It is important to note, at this point, the differences between the facilities at Bournemouth and those used in the motion capture phase in Bedford. Bournemouth's motion capture suite consisted of a larger space, though similar sized area for capture. The flooring was also quite different, though better for dance. In Bedford, the floor was textured and meant it was sometimes difficult to move in the way intended, however, Bournemouth's flooring was smooth and flat. The suit was also different, as commented on previously. It was a specially made Lycra suit for the purposes of motion capture with additional Velcro pads for securing the markers. It came in three sections, the trousers, jacket and cap (see Figure 15 below). The jacket of the motion capture suit came with elasticated bands which went around the middle finger to secure the sleeves.

Also, with regard to my dancers, it is important to note their subjective health that day. Dancer 1, for example, was experiencing a mild cold and was slightly congested, while Dancer 2 had recently aggravated an old knee injury, interestingly, while in flow during a workshop the previous week, "I was in flow because I was really enjoying the class and I was really going for it and I thought, yeah, yeah, yeah, and then, and then it

happened.” (Dancer 2, 2013b). Both of the dancers confirmed they were in a fit state to participate; however, these ailments would impact on their dancing. For example, Dancer 1 became out of breath more frequently, while Dancer 2 became mindful of not putting too much strain on the previously injured knee.



Figure 15: Dancer 2 wearing specialised motion capture suit from Bournemouth University

On the day, the space was prepared and two cameras set up for recording, one to be fed into the data capture system, and the other as a record of the day. The warm-up began with both dancers and researcher as leader. As explained above, the dancers were separated during the tasks in order that they were not influenced by the tasks prior to their own workshop. Unfortunately, due to the wait for Dancer 2, the warm-up was ill-

timed and thus the dancer continued to warm-up outside of the space prior to their workshop. The warm-up for Dancer 1 was also problematic as the preparations for the workshop were relatively lengthy as the suit needed to be adjusted and markers appropriately placed.

The use of the warm-up to focus the mind was also lost and made more problematic by the unusual space and people involved for the dancers.

[I]t still felt like a bit of an alien environment, it didn't feel as much like a studio that you're kind of comfortable in because sometimes going to different places can feel a bit different.

(Dancer 2, 2013b)

On reflection, it might have been more appropriate to provide two separate, longer, warm-ups for each of the dancers after all the preparations and fitting of suits had been completed. This may have allowed them greater time to achieve the focusing and centring of attention they required and then enabled them to remain focussed without further distractions.

Both of the workshops then proceeded as expected; the dancer (Dancer 1 or Dancer 2) was given the six tasks, one at a time, by the researcher. The dancer then responded to those in improvisation. The start of the task was initiated by either the researcher or the technician, and the end of three minutes indicated by a sound produced by the motion capture system. In between tasks, both the dancer and the researcher completed a journal entry utilising the stream-of-consciousness writing task as articulated in Chapter Seven. After the sixth task, the dancer was reminded of the previous tasks, and asked to choose one to improvise to for up to 15 minutes or until they were ready to stop. After this final task a longer 5 minute period of stream-of-consciousness writing followed. The only problems encountered in this stage of the workshop were that occasionally the markers fell off as they danced. This occurred twice in the last task for Dancer 2, and initially Dancer 2 was asked to re-start the task as the improvisation had not been going very long; however, the marker then proceeded to fall off again after about 7 minutes of capture. At this point it

was decided to end the capture as this both distracted the dancer and caused potential problems for the motion capture data clean-up.

The dancers were then asked to try to identify any moments of flow they might have experienced during the last task. For Dancer 1 this was not a problem, and resulted in the dancer identifying two sections of movement from the video, where the dancer noted the approximate start and end time of each moment of flow. This timing corresponded with the motion capture data, as the video had been incorporated into the system, which thus enabled a clear reference for flow in the motion capture data. For dancer 2 however, due to the restarting of the task, a problem occurred with the video capture, and only a video of the short cancelled improvisation was available, however the motion capture data was available for both sessions recorded. The dancer was thus asked to try to locate the moments of flow directly from the motion capture data. It is important to note that despite this, Dancer 2 was able to locate the moments of flow and, indeed, this reveals the suitability for the form of the visualizations in their ability to visualize flow.

10.5 Visualizations

The final phase was the construction and analysis of the visualizations. This began by refining the visualizations based on the previous criteria demarcated in Chapter Nine, by presenting the data in an easy to read way. Initially, this meant removing the extra markers used for the capture: the upper back, the lower back, the two ASIS markers and the two toe markers. Immediately this made the body easier to perceive. Secondly, a new facing was programmed; in the initial visualization the capture was presented from the same angle as the video recording, however, the two dancers tended to use another facing as 'front.' While a 'front' was never established between myself and the dancers, and indeed, while the movement tended to change direction utilising the full 360 degrees of space, there was always a return or a referencing to one particular facing,

and in watching the movement, it was always easier to depict the movement of the body from this facing.

Another alteration was made in the length of trajectory and size of the marker. Originally the trajectory lines were very long, which meant fast movement became difficult to see in the midst of the lines. This problem was exacerbated by the small size of the markers; these were simple fixes which enabled the motion of the body to be more clearly seen. A greater problem however existed in composing the colour scale for the trajectory lines and unfortunately, this was not achieved by Zhidong Xiao. Examples of the various phases of visualization are provided in Chapter's Two, Three and Four of the DVD (Appendix D).

Interestingly, the more basic visualization provided in the EVaRT Motion Analysis software, became the easiest in interpreting the movement. The EVaRT visualizations included marker points and trajectory lines of both past and future motion. While individual markers could easily be removed and the trajectory lines could be made present or absent, there was little modification available. For example, it was not possible to only have the trajectory lines showing for past movement. It was also not possible to colour these lines based on the velocity of movement. However, additional graphs were available visualizing various aspects of the data, for example the velocity, acceleration and position of the markers, as well as the distance between two markers. Chapter Eleven evaluates the results of the various visualizations as well as the results of the data collected in the journals and proceeding interviews.

Chapter Eleven: Reflecting on Flow

Within this chapter there is a shift in tone. As noted in Chapter Seven, the use of reflective journals and semi-structured interviews was utilised in the collection of verbal dialogic data. The experiential data collected is important within this thesis in identifying the subjective experiences of both the researcher and participants. In traditional academic terms, dance is considered to give primacy to subjective experience, as a work of art, it is: “an expressive form created for our perception through sense or imagination, and what it expresses is human feeling.” (Langer, 1947, p. 15). The evaluation of such data thus requires different analysis to that of the quantitative empirical data and language is considered closest to the subjective and experiential. The hermeneutic method employed in interpreting the data serves to “acknowledge that trust and truth are fragile... [while enabling one] to engage with the messiness and complexity of data interpretation in ways that...reflect the lives of ...participants” (Savin-Baden and Fisher, 2002, p. 191). Thus not only are entries from both the researcher’s and the participants’ journals directly referred to, but the use of first-person pronouns will also be employed in order to indicate the researcher’s intimate role in the construction of the data.

The first part of this chapter ‘My observations’ details the initial interpretations of the two dancers during the data collection phase. It

draws on the researcher's perceptions during these tasks as detailed in the researcher's journal and aims to clarify the subjective experience of the researcher in identifying the experiences of flow in both participants. In doing this it draws on the subjective experiences of the participants and develops an interrogation of the intersubjective nature of the research and the use of 'reflexive embodied empathy' as defined by Dr. Linda Finlay and discussed earlier in Chapter Seven:

[Reflexive embodied empathy is] a reciprocal process where one seeks to find ways to allow the Other to present him- or herself to and through one. It involves an intersubjective process of imaginal self-transposition and mutual identification where self-understanding and Other-understanding is intertwined.

(2005, pp. 289-290)

This method draws on Merleau-Ponty's thesis of the flesh and the reciprocity of experience in which "[t]here is reciprocal insertion and intertwining of one in the other." (Ibid, 1964, p. 138).

The second section, 'Remembering flow,' addresses the participant's own reflexive embodied empathy toward their digital selves, or digital 'other'. It illuminates the nature of habit in the body, and the role of both habit memory and episodic memory in the construction of self. In watching the recordings of their improvisations, the dancers directly recognised their selves in the footage (either video or motion capture). They describe the identification of those moments as being recalled in memory, therefore, this section considers the role of conscious memory and whether it aligns with the experience of flow, with links to Merleau-Ponty's habit body as discussed in Chapter Three.

The final section 'Visualizing flow' addresses the efficacy of the digital visualizations in enabling a reflexive embodied empathic relationship between researcher and participant. It explores both the motion graphs available from the Motion Analysis EVaRT system, and the EVaRT motion capture visualizations, in order to describe the moments of flow through objective analysis. While the motion graphs do not display any common

qualities in the sections of flow, the visualizations do elicit a similar response from the researcher in the identification of the moments of flow. These moments are then further analysed to discern any significant motional qualities and to support the observations made in the workshop.

11.1 My observations

During the tasks, and, articulated within the stream-of-consciousness reflective writing conducted after each task, it was clear that my perception of the dancers in improvisation indicated when the dancers had achieved flow. This was in both a generalised sense, with regard to the overall sense of flow within a particular task, and in a more specific sense, during particular phrases or movements of the dancers. This perception came from an embodied connection I experienced to particular phrases of movements, in which I describe being “drawn” to them. I grappled in the journal with the idea that I was either “sharing” or empathising with their experience of flow, or else, achieving flow myself, through watching them dance.

I was wondering if the moments of dancing with [*sic*] I connect with, actually reflect my own flow movement qualities? Or whether I am sharing in her flow experience? Or neither??

(Douse, 2013)

This reflects the multiple layers in which Linda Finlay describes our ability to empathise with the ‘other’ (Finlay, 2005, p. 272). The first layer Finlay denotes as ‘connecting of,’ in which one connects with the other through using one’s own embodied reactions, for example; “... there was some really interesting moments. And I was completely involved in it and developed (?) some kinaesthetic empathy towards it.” (Douse, 2013). In this instance I am describing a physical reaction to watching Dancer 2. The bracketed question mark indicates my ambivalence to the term ‘developed’ as I wrote my response, perhaps indicating the embodied nature of the experience and the difficulty in precisely portraying that experience through words.

The second layer Finlay calls ‘acting into’ in which “[u]nderstanding, therefore, comes from somehow taking up, identifying with, and then enacting the Other’s experience” (2005, p. 281). In Dancer 2’s sixth task I describe “moments when I felt connected and in flow myself,” (Douse, 2013). In these moments, I acknowledge feeling in flow as a spectator; I am engaged with the dancer’s embodied experience and am able to capture this experience through my own sensations of being in flow. Flow for me was a physical response to watching them dance; I felt myself mimicking the movements of the dancers and enjoyed a feeling of uplift. I often acknowledge that this may just be a reflection of my own personal ‘flow’, but in the moments, I feel I am resonating with the experience of the dancer, and mirroring her enjoyment for the task: “Liked this one a lot – found the idea of responding to either being touched or the sensation of that touch really interesting to explore.” (Dancer 2, 2013a).

The final layer is that of ‘merging with’ in which Finlay describes an experience where “[Finlay], as researcher, became so thoroughly immersed in [her] participant’s experience that [she] (momentarily) lost sight of [her] own.” (2005, p. 284). One common theme in my journal entries is the identification of my own insecurities about the workshop, about the effect of the environment on the dancers, my concern for the dancers’ lack of flow and my concern for my own interpretation of that experience. However, in the tasks in which I perceived the dancers to be in flow, through this ‘reciprocal embodied empathy’, there is no self-doubt or concern; “I have not been concerned so much about [Dancer 2’s] tasks – despite her knee problems. It feels like she knows her body better than [Dancer 1]??” (Douse, 2013).

What is interesting about these observations is that my experience and perception of flow relates largely to Dancer 2 and not Dancer 1. This also reflects the dancers’ own perceived experiences of flow. In the final task, for example, Dancer 2 notes six moments of flow while Dancer 1 notes only two. This is also acknowledged by Dancer 1 in the interview where

she states “I’ve kind of found it hard to imagine where [flow] is when you’re dancing,” (Dancer 1, 2013b) and indeed, when asked if she had ever experienced flow in anything else, she replied: “No I, I guess not.” (Dancer 1, 2013b). This therefore calls in to question the relation of intersubjectivity to flow experiences. For example, in one of my journal entries I note:

[The task] didn’t really seem to go anywhere, I felt quite outside from it – like I was just watching [Dancer 1] in a motion capture suit do a task – I didn’t feel compelled to watch or drawn into the movement, I wonder if it reflects a lack of flow for [Dancer 1], but certainly for me. I was partly distracted, thinking about things, I can’t remember what now...”

(Douse 2013)

This distraction and lack of flow from the perspective of the spectator also indicates a lack of intersubjectivity. It could therefore be suggested that flow is itself an example of reflexive embodied empathy. Although that is to say that not all intersubjective relationships are positive, as in flow. On the other hand it could be argued that my entry above indicates a mirroring and ‘acting into’ the identity of the other. Dancer 1, in the same task, notes:

I think the word delicate was in the description and made me think lots about detail & precision & articulation. Sometimes I thought about connection between 2 points like a puppet but that always broke off because it limited what I could do with my body.

(Dancer 1, 2013a)

Perhaps the broken flow of Dancer 1 was therefore mirrored in my distracted experience of the task. Regarding the conclusions in Chapter Four, Dancer 1’s lack of flow could reflect both Csikszentmihalyi’s and Laban’s views of the propensity one has for this type of intrinsically motivated experience. In Chapter Four, I relate both Laban and Lamb’s use of the term ‘flow’ to Csikszentmihalyi’s characterization of the Autotelic Personality, in which both describe the effects childhood has on retaining this quality. In this instance if Dancer 1 experiences less flow in general than Dancer 2, it could imply that she has less autotelic tendency, and therefore less ‘flow’ in Laban and Lamb’s sense of the word.

With regard to Lamb's research this flow variation exists in effort (free/bound) and shape (growing/shrinking). Within my journal entries it is clear this could be the case. Task four 'Planes,' is arguably the task in which Dancer 2 achieved most flow; "LOVE IT" (Dancer 2, 2013a). When watching this task I note that "what was interesting was that the gestures/postures?? seemed to be opposing – like dissonant?" (Douse, 2013). In Dancer 2's final task I also remark on her "big/small" movement. On reflection, it could be considered that what I am referring to is the variation of flow from growing to shrinking and fast to slow, free to bound.

Drawing further on my descriptions of the dancer movements as I perceive them to be in flow, there are further connections to Laban and Lamb's idea of flow and posture-gesture merging. In the following reference I go on to describe my experience of task five, the 'Mobile' task, as danced by Dancer 2.

This felt less interesting – I think there were less dynamic changes and more gestural movements rather than whole body. Which would reflect Laban/Lamb's theories – unless of course [Dancer 2] was in complete flow – and it was just me who missed it. Again, I think this movement was nice, but it didn't spark for me, it didn't excite.

(Douse, 2013)

In the above reflection, I make two interesting inferences. I again refer to my felt experience of the movement; that those perceived moments of flow "excite," and "spark," and draw my attention while the non-flow moments are considered "less interesting," though "nice." The second inference, however, is in the describable qualities of the movement, referring to there being less dynamic variation and full bodied interaction. With regard to the first of these, it is interesting to note that Dancer 2 did not achieve flow in this task for the most part, if at all;

That was really hard – I think a baby underneath that mobile would have nightmares and be scared for life. I felt a bit like a 'monster' leching down lolling around. I did discover isolated twisting towards the end which was more interesting to dance –

but other wise [*sic*] was a bit like a long armed ape – swinging about like a – who knows what.

(Dancer 2, 2013a)

In relation to the second part, it is Lamb's posture-gesture merged movement which I refer to more frequently in the journal. In Appendix C I detail all the references of posture-gesture merged movement observed per dancer. What is apparent is my increasing awareness of the link between posture-gesture merged movement and my perception of the dancers being in flow. It is only in the journal entries from watching Dancer 2 that this link becomes explicit. My understanding of flow is clarified in response to the observations of Dancer 2, because this second observation firms up my understanding through the increased experience of flow in Dancer 2. While I acknowledge the perceived limited experience of flow in Dancer 1, it is not until watching Dancer 2 that my perceptions are reinforced and I am made aware that Dancer 1's experience was indeed limited in contrast to Dancer 2. It is thus both because of a greater range of flow experiences in Dancer 2, and because my perceptions of Dancer 1 are shored up by observing difference in Dancer 2 that I am able to identify the physical characteristics of flow in the posture-gesture merged movement.

Employing such a reflexive embodied empathic response to the dancers in improvisation therefore indicates that flow is an experience which can be shared, and more specifically can be identified in the embodied responses of the dancers. Flow can be considered thus both a psychological concept as identified in Csikszentmihalyi's research, in which enjoyment, interest, and excitement are present in both the dancer and the researcher, as well as a physical concept, in which the variation of flow as articulated by Laban and the merging of postural and gestural movement as articulated by Lamb refer.

11.2 Remembering flow

The next stage of analysis comes with the dancers' identification of flow from the digitized video, for Dancer 1, and motion capture data, for Dancer 2. Whilst both dancers inevitably did identify these moments of flow from their respective visual forms, and particularly, in relation to Dancer 2's identification from the motion capture visualization, it is important to note that their experience of these forms reflects their everyday experience with such technologies in their immediate recognition of self. The experience of recognition is evident in an individual's recognition of self in the mirror or photograph, and is a phenomenon humans (among other primates) develop by the age of two. (Amsterdam, 1972). Given this particular relation to the data, it was not considered that the characteristics of the visualisations highlighted the moments of flow, rather it was related to their memory of the task, and in particular their lack of memory regarding the specific moments of flow.

I guess you don't remember the flow moments, you remember the moments where you've changed out of it, and noticed something or did something different.

(Dancer 1, 2013b)

This was similarly reiterated by Dancer 2:

At one point, I knew that I'd achieved flow when I'd gone into a bit that I'd done on the floor, I didn't necessarily know what I'd done on the floor, but I knew that I'd gone down there and I had, had a clear kind of sense that, that I had achieved flow there, and so in some ways I was kind of pre-empting knowing.

(Dancer 2, 2013b)

This lack of memory relates to the idea of 'expertise-induced amnesia,' where "if a skill is supported by procedural knowledge that automates real-time performance, then episodic memory for this performance should be minimized." (Beilock and Carr, 2001, p. 703). Here a distinction is made between two types of memory; procedural and episodic. Procedural memory typically refers to the memory which instigates unreflective action, such as the physical memory of riding a bicycle, whereas episodic memory

is often considered to the recollection of a particular past experience. This can be seen in the writing of Edward Casey, Professor of Philosophy, and his work on memory within Merleau-Ponty and Henri Bergson's work. In his article 'Habitual body and memory in Merleau-Ponty' (1984), he describes three types of memory rather than the usual two: spontaneous (episodic), habit (procedural) and custom. Here he distinguishes between habit and custom by describing custom memory as a passive form of memory and the antithesis of episodic memory as an active memory. In this sense, custom memory relates to Heidegger's notion of inauthenticity as an 'average everydayness,' while habit sits between custom and episodic memory, described as 'activity in passivity.'

Casey describes habit memory as combining "repeatability with uniqueness... permanence with transience... perceptual with motoric action... self with world..." (1984, p. 287). Habit memory is therefore a liminal memory, which links to the notion of habit developed in this thesis. In relation to 'expertise-induced amnesia', therefore, "[habit] constitutes a middle layer of human being located between the body itself and reflective thought" (Ibid, p. 289). Habit memory is neither purely mental in the recollection of a specific past incident, nor purely physical, in a neuronal response to stimuli:

The threat to recollection posed by habit memory is thus not only a threat to its uniqueness or power as a prototype for all remembering. It is also a threat to the very idea that memory is either an exclusively mental affair (i.e. a strictly ideational form of re-experiencing the past) or something whose proper preserve is the body alone (e.g, the brain as a storage place for engrammatic places.

(Ibid, p. 280)

Habit memory is thus always related to the physical and mental articulation of the past, but is neither a recollection of that past nor a purely physical response to the past. "[T]he past is not immanent there as an inert mass of accumulated items. The process of sedimentation is ever at work: intentional threads go back and forth between the body and its ever-changing phases, which are continually reanimated by current experience"

(ibid, p. 285). In this sense, flow, while often considered as 'being-in-the-moment', is more of a historical accumulation. This can be reflected also in the dancers' remediation of their experience of flow in the interviews.

In listening to the recording of the interviews, it is interesting to note that Dancer 1's recounting of flow is quite unvaried in pace and tone but is punctuated, however, by long pauses and frequent 'umm', 'ahh', and 'err'. Dancer 2, while not immune from the odd 'umm' and 'ahh', did develop much greater fluency and variation of both tone and tempo when describing particular moments of flow. In this sense, it could be argued that the experience of flow is ever established and reanimated into current experience.

11.3 Visualizing flow

The final step was to look at the various visualizations for analysis. The main analysis came from the Motion Analysis EVaRT visualizations, both in terms of the visualisations of the markers in motion, and in terms of the visualization graphs that accompany the software. Beginning with the graphs, these included several x, y and z graphs for the position, velocity and acceleration of the markers, and some other options allowed analysis of the distance between two points. The first three could be viewed as a three single lines representing an individual marker in the x, y and z axis or numerous sets of lines representing numerous markers, with the possibility of presenting the whole selection of markers for example. The distance between two markers is presented as one single line.

This first thing to do, therefore, was to identify the particular moments of flow in each instance to see if there were any significant differences between those moments of flow and those moments of non-flow, but also to see if there were any connections between the individual graphs. Figures 16, 17 and 18 provide an example of the position, velocity and acceleration graphs for Dancer 2, using all markers, and Figure 19 shows an analysis of the distance between the left and right hand marker. In each

figure the sections of flow are highlighted in white, and were constructed by the researcher.

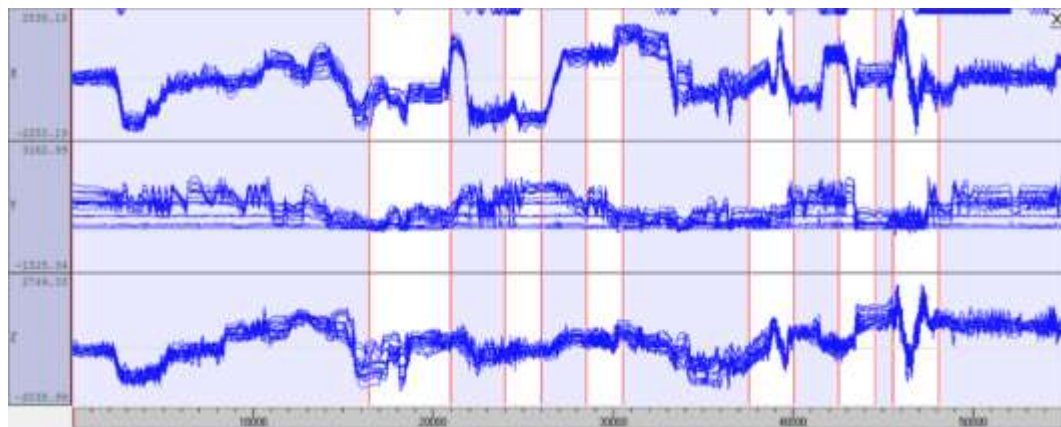


Figure 16: Graph of whole-body marker position

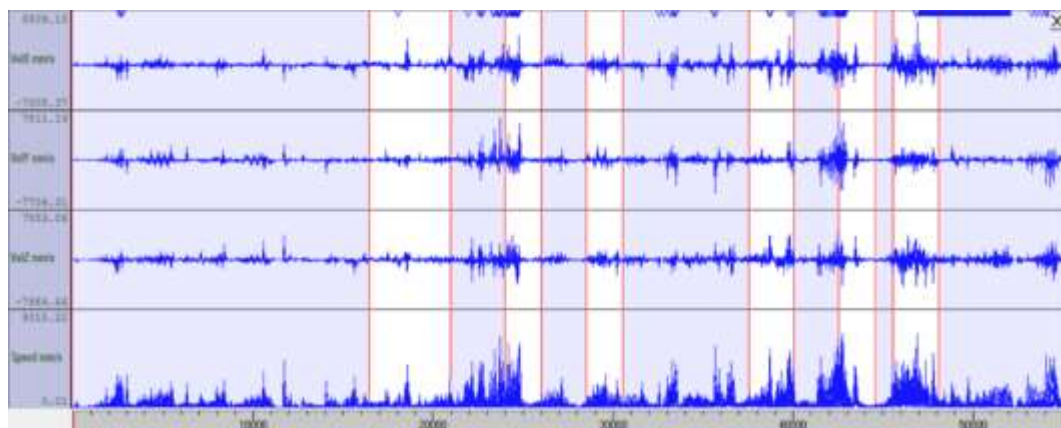


Figure 17: Graph of whole-body marker velocity

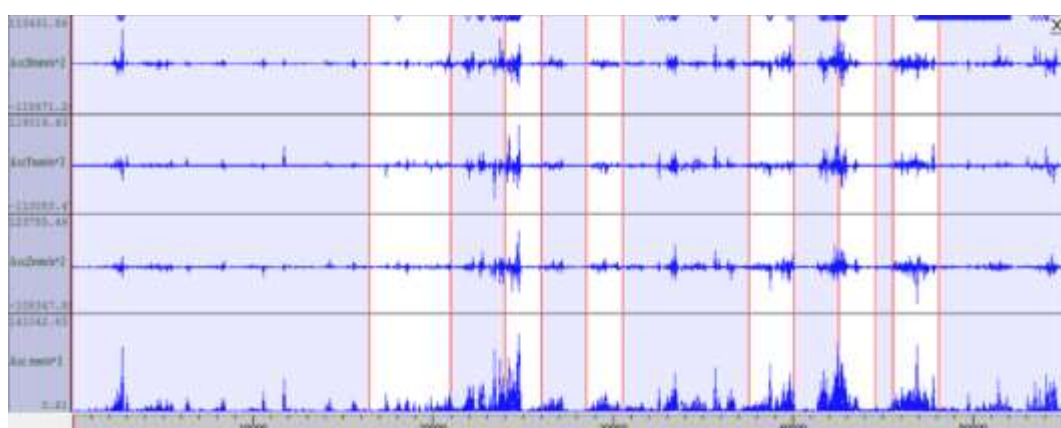


Figure 18: Graph of whole-body marker acceleration

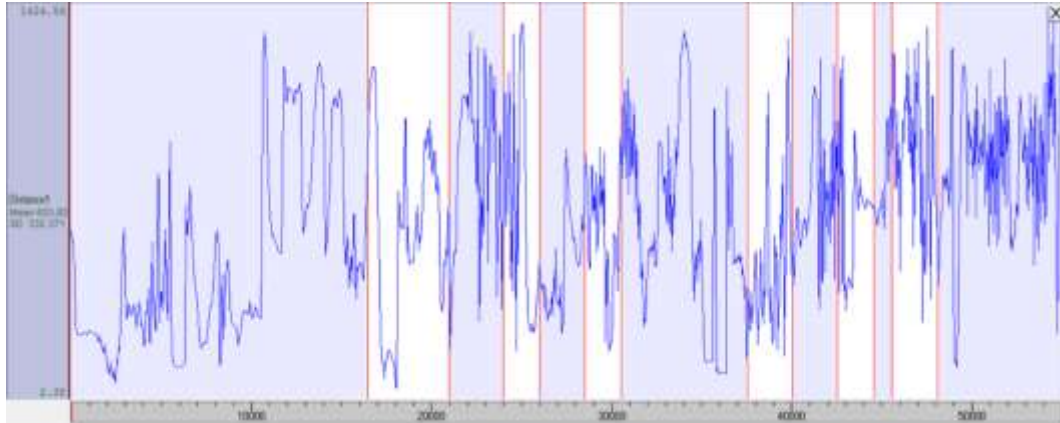


Figure 19: Distance between left hand marker position and right hand marker position

The analysis graphs depicting both singular markers and multiple markers for position, velocity and acceleration showed no significant results. With regard to position, it is important to note that the markers reflect the position within space; the x graph (top line) for example, shows movement which is positioned on a scale between the front and the back of the space. The y graph (middle line) represents movement which is positioned on a scale between the top and the bottom of the space, and the z graph (bottom line) represents movement which is positioned between the left and right hand sides of the space. It is therefore unlikely that movement in a particular area of space would have more flow than any other area.

In relation to velocity and acceleration, the top three lines depict the same x, y and z values as for position; it represents the velocity or acceleration of the marker moving between front/back, top/bottom and left/right. The bottom line, however, represents the overall velocity or acceleration of the marker. In this respect the moments of flow do not seem to have any consistency; while there is some evidence of 'phrases' of movement in terms of phrases of fast or phrases of slow movement, the moments of flow seem to occur mid-phrase, at the beginning of the phrase and at the end of phrase, with no discrimination. Spikes indicating high velocity and acceleration are present in most of the sections of flow, but also in sections of non-flow, they appear at the start of the moments of flow, at the end, and in the middle, with little consistency.

It was interesting to see if there was any correlation with Lamb's argument of flow in shape as movement which moves between growing and shrinking in relation to the distance between two points. While there is no direct translation of this, it seemed suitable to address the distances between the right hand and left hand, head and left foot, head and right foot, left hand and right foot, right hand and left foot, left shoulder and right hip and right shoulder and left hip. It was possible that the sections of flow would contain greater variation of distance, for example the greater the distance between said markers could indicate the concept of growth, and the shorter the distance between the markers could indicate the concept of shrinking, and thus the moments of flow, would show variation between growing and shrinking, however, this also was not the case.

Interestingly, the data for both Dancer 1 and Dancer 2 revealed no significant results regarding those moments of flow in relation to the non-flow moments. While this suggests that the moments of flow cannot be quantified using such objective techniques, it is important to note that these graphs are only one particular way of presenting the data and are confined to the parameters of the Motion Analysis EVaRT software. However, the motion capture visualizations from the EVaRT software, on the other hand, (available in Chapter Five of Appendix D), does lead to some interesting insights. Whilst it is not always possible to perceive the start and end of the moments of flow, when the dancers do achieve flow, there is certainly evidence in the visualization. In the same ways that I could identify with the moments of flow in the original act of improvisation, the visualizations incite similar responses in terms of engagement and empathy, as well as further supporting the inferences made of a connection to posture-gesture merging.

Firstly, this indicates and supports the research in Chapter Six which highlights an individual's ability to empathise with digital forms. In my initial viewing of the motion capture visualizations, two months after the workshop, I was able to identify specific moments when I perceived the

dancers to be in flow. At this point, my memory of the improvisations was vague and therefore my response to the visualizations was based on my perception of the markers in that moment of viewing. For both dancers, I recorded an indication of the moments of flow based on the time of a specific moment. Often I was only able to produce a single time rather than a time frame, to indicate that at this point I perceived the dancer to be in flow.

When comparing these times to the times the dancers had provided, there was evidence, that in most cases, I had correctly identified the moments of flow. Figure 20, below, indicates the times of flow identified by both the dancers and myself. The cells highlighted in green show those of my times which sit inside of the dancers' time frames. The cells highlighted in yellow show those of my times which sit outside of the dancers' time frames and in both instances with just over fifteen seconds difference, and the red cell highlights a moment of flow which has not been identified by me. It is clear that for the most part, I was able to identify with the motion capture data in the same way that I had identified with the dancers, and that my experience of flow corresponded with the dancers' experience of flow.

	Flow 1	Flow 2	Flow 3	Flow 4	Flow 5	Flow 6
Dancer 1's times from video (13 June)	2.30-3.00	4.45-5.20				
My times from Dancer 1's motion capture visualization (8 August)	2.14	4.49-5.03				
Dancer 2's times from motion capture (13 June)	2.45-3.30	4.00-4.20	4.44-5.05	6.15-6.40	7.05-7.25	7.35-8.00
My times from Dancer 2's motion capture visualization (8 August)	3.48	4.03	4.48	6.21		7.36-8.00

Figure 20: Table indicating times of flow identified by both dancers and researcher

In relation to the identification of flow, I again make reference to the notions of flow and posture-gesture merged movement in Laban and Lamb's work. It was, for example, possible to see in the motional qualities of the visualization the sequential movement of the markers in which there was "action involving continuous adjustment of every part of the body." (Lamb, 2012, p. 21). This was most clear in Dancer 1's spinning movement in the second flow moment I identified (4.49-5.03 in Section 5.1 of DVD, Appendix D) where, within the phrase, it was possible to see the movement advance through the body to the ends of the limbs, "where a postural movement supports and is consistent with a gestural movement." (Ibid, p. 21). However, the moment of flow starts part way through the entirety of the spinning (4.30-5.03), and so what I perceived made this moment of flow in the spinning different to the non-flow spinning was also the continuity of the movement.

For Dancer 2, the posture-gesture merged movement was equally noticeable in her movements involving gestures; at times the movements solely involved the arms, but at others, these movements were integrated into the whole body, where "a gesture merges into a movement of the body as a whole" (Ibid, p. 21). In the second moment of flow which I identified at around 4.03 (Section 5.2 of DVD, Appendix D) an upper body arm movement enlarges to include a sequential lift of the leg. In the third moment of flow (4.48), there is a dropping and spiralling of the right shoulder which leads a swing of the upper body and a shift in the placement of the hips. At around 6.21 in the fourth moment of flow there are pockets of movements which can be seen to ripple through the upper body and lower body, like the movement of a caterpillar on the floor. Finally, in the last moment of flow (7.36-8.00) there is a sweeping motion of the body which seems to ebb and flow, growing and shrinking in sequential order.

It is clear that while there may be no discernable qualities in the motion graphs, the motion capture visualizations still incite a reflexive embodied

empathic response and help to clarify the particular motional qualities of the flow experience. The use of the visualizations in this sense helps to clarify those moments of flow by reducing the visual stimuli and pointing to the motional qualities of the experience through the representation of time and space in the body. The particular qualities discerned also reinforce the observations made on the day of the workshop regarding the posture-gesture merged movements and qualities of flow as defined by Laban and Lamb.

The results of this study have therefore been threefold: firstly, it confirms that flow within contemporary dance improvisation is both a psychological and physical phenomena. Secondly, it suggests that such an experience of flow is perceivable by third persons, and thirdly, it proposes that these perceptions can be identified through the use of innovative motion capture technologies, through methods of reflexive embodied empathy. In the concluding chapter of this thesis, the researcher will draw out the larger implications of this study in enabling a conception of the body as negotiated by a technologically mediated world.

Conclusion

The thesis was set out to explore the notion of 'flow' from both a psychological and dance analysis perspective in order to extend the meaning of flow and move beyond a partiality of understanding. The main aim of the thesis recognised the need to understand, identify and interpret an analysis of the moments of flow perceivable in a dancer's body during improvisatory practice, through technologically innovative means. The significance of this endeavour can be seen in the reconsideration of the relation between mind and body, and art and science which informed the methodology for the research (Part One). The three main outcomes of the research are related to each of the three subsequent parts. The first is the articulation of a transdisciplinary approach to understanding flow; the second is with regard to the identification of the intersubjective nature of flow; and finally, the third research outcome is that this intersubjective experience can be technologically mediated.

The first research outcome was developed within Part Two of this thesis by expanding on the current definitions of flow through an innovative transdisciplinary methodology, and in turn both developed and transcended such definitions to move beyond the disciplinary definitions of flow. Notions of flow within positive psychology and movement analysis, in relation to Mihalyi Csikszentmihalyi and Rudolf Laban respectively, were considered. Drawing on phenomenology as a methodology the researcher was able to identify a gap in the current literature concerning optimal experience as a state of being which can be evidenced in the body. In

employing a phenomenological approach to both Csikszentmihalyi and Laban's research, it was concluded that an individual's optimal experience is only available to them through their embodied intention toward the world, thus arguing for a psychophysical definition of flow.

Merleau-Ponty's notion of the habit body and Heidegger's notion of authenticity were employed in relation to Csikszentmihalyi's characteristics of flow to argue that the individual is both constituted by and freed from their habitual action in the world. Further, it is only in those liminal moments, which Heidegger termed 'authentic' which reveal an individual's 'potential-to-be-whole' and experience of flow. The research identified by Laban and Lamb with respect to movement analysis, was consequently argued to evidence these moments of optimal experience in the body. Laban and Lamb's analyses have been said to represent an individual's preferred patterns of movement which contribute to their motivation for action in the world. A new conceptualization of flow was made possible which enabled a description of both the physical and psychological characteristics of optimal experience and it was thus possible to identify particular improvisatory dance practices which might facilitate such an experience of flow.

Research outcome two, the intersubjective nature of flow, was identified in Part Three through the use of reflection and dialogic processes within improvisation. The researcher constructed a methodology for identifying flow through the embodied intersubjective relation between the researcher-practitioner and participant-dancer, drawing on Merleau-Ponty's research on intersubjectivity and the burgeoning neurobiological studies of empathy. It was argued that intersubjectivity informs embodied empathic responses to the 'other' and arises from a reflexive reversibility and shared narrative of the world. Hermeneutics was addressed as a tool for interpreting the experience of the 'other', drawing on Linda Finlay's term 'reflexive embodied empathy' in order to examine the role of the researcher.

From this two methods were constructed for the collection and interpretation of the experience of the dancer. Firstly, reflective practice as defined by Donald Schön was referred to and clarified in respect to the structure of flow experience. Reflective methods were utilised including stream-of-consciousness writing and semi-structured interviews in order to enable a hermeneutic cyclical process of understanding between researcher and participant. Secondly, an argument was provided for the use of motion capture as an embodied tool which extends the dancers embodied cognitive capabilities in the moment of improvisation.

The final research outcome was thus theorised that such embodied empathic intersubjectivity does not require a direct identification of the other's body but could be achieved through technologically mediated objects in the world. Part Four therefore sought to identify a method for both constructing and interpreting the visualizations from the motion capture data, using a hermeneutics of technology. A discussion on the process of refining the methods for each phase of the research enabled an assessment of the implications for their use. The results from the data collection phase of the research indicated that flow can be perceived in the body of the 'other', and further, elicited by means of subjective embodied response to the technological data.

There were, however, limitations with regard to the parameters of the technologies in their ability to display the motional qualities of the data, which meant it was not possible to find objective quantifiable indications of the moments of flow. The theoretical implications of this outcome suggest that technologies are able to mediate subjective embodied experience and allow for an embodied interpretation of that experience. This differs from the typical use of the technologies within both the arts and science disciplines by enabling both an embodied subjective and objective understanding of the body. While the particular visualizations within the EVaRT software were not able to quantify the experience of flow, the

embodied response of the researcher to those moments of flow came directly from perceiving the motional data.

Subsequently, the findings from the research could support further research within a number of fields including dance education, dance practice and dance therapy, psychology and neuroscience. Furthermore, the fields of visualism, gaming and interactive arts practices could be supported in their development with regard to the application of Lamb's work within visualisation as tool for interpreting embodied human behaviour. The technological limitations of the research could be expanded on and resolved within these specialist technological fields. Consequently, the research supports a transdisciplinary approach to the arts and sciences. For in spite of increasingly novel approaches to technology within both the arts and sciences, there remain distinct relations between human and technology in each field. The benefits of the innovative transdisciplinary approach taken in this research include multiple applications across both the arts and the sciences.

Whilst there are numerous directions and applications for this research, the researchers own goals for further research include a deeper investigation of the particular practices which might facilitate flow. In particular, with reference to the somatic practice of Shin Somatics developed by Sondra Fraleigh. Within the researchers training in this discipline as a Somatic Movement Educator, the extent to which somatic practices offer a methodology for understanding sensing and perception within the context of embodiment can be further explored. This training also complements the researcher's current qualification in massage therapy and further interest in the reciprocity of touch and its empathetic nature.

Further emergent ideas which result from the limitations of the research include the link between optimal experience as defined in biomechanics and psychology within the broader field of dance science. While it is not possible to make generalisations about the distinct qualities of flow in all

dance forms or even in all contemporary dance, the research does indicate that flow is apparent in posture-gesture merged movement as espoused by Warren Lamb. It is therefore the interest of the researcher to further analyse the work of Lamb with respect to these particular fields. The recent archive of Lamb's work within the NRCD as well as the connections to current practitioners of Lamb's practice via the Laban Guild offers a potential opportunity for further research.

In conclusion, the research provides an innovative methodology for approaching the concept of flow in dance which transcends the fields of art and science through the use of the transdisciplinary application of technology as a tool for analysis.

Appendices

Appendix A: Movement Tasks

Task 1 – ‘Inner Surface’

Watch the surface of your body from inside. See how the inner surface changes as you move. Initially, it may be helpful to imagine yourself as a large balloon in the shape of your body. Place your mind's eye inside this balloon and watch it change shape from your inner vantage point. As you move, certain areas of the balloon extend outward, while other areas are pulled inward. Pay special attention to the changes of the inner contours of the balloon.

(Franklin, 1996, p. 30)

Task 2 – ‘Synaesthesia’

Begin with input from any of the senses, and transform your response to it via one of the other senses. What is the shape of soft? How fast, and with what rhythms does the colour purple move?

(Blom and Chaplin, 2000, p. 213)

Task 3 – ‘Puff of smoke’

Think of yourself as a puff of smoke dissipating into space.

(Franklin, 1996, p. 33)

Task 4 – ‘Planes’

Work in each of the three planes; vertical, horizontal and sagittal. Choose a different body part to move within the planes. What if your left arm moves in the sagittal plane while the rest of your body moves in the vertical plane? Keep shifting planes and body parts.

(Blom and Chaplin, 2000, p. 192)

Task 5 – ‘Mobile’

Imagine yourself to be an elaborate mobile, a set of delicately balanced structures dangling from each other by strings.

(Franklin, 1996, p. 54)

Task 6 – ‘A Type of Touch’

Explore different kinds of touch: poking, scratching, stroking, slapping. Respond with movement. Try to split your perception and attend only to the sensation of being touched, or only to the texture of the surface you are touching.

(Blom and Chaplin, 2000, p. 18)

Appendix B: Template Semi-Structured Interview

General

- What is your experience of flow?
- What is your understanding of flow?
 - Challenge-skill balance
 - Action/awareness merging
 - Clear goals
 - Unambiguous feedback
 - Concentration on task at hand
 - Sense of control
 - Loss of self-consciousness
 - Transformation of time
 - Autotelic experience
- What are the problems of achieving flow?
 - Research environment
 - Markers
 - Restricted space
 - Task
- What are the differences between this and your usual dance making practices?

The task

- Which task did you choose?
- Why did you choose the particular task?
 - And not others?
- How did the task facilitate flow?
 - Use of imagery – type of image?
 - Dynamics?

- Where was your focus during the task?
 - Inside/outside
 - On the task/ elsewhere

Relationships

- What did you understand my/our role to be during these tasks?
 - How did you understand it?
 - Researcher?
 - Choreographer?
 - Friend?
 - Colleague?
- How did my/our presence affect your experience of flow?

Capturing flow

- Where you able to locate the moments of flow in the video? How?
- Was viewing the experience different to the actual experience? How?
- How did viewing it make you feel?
 - Did you experience the same sensations as when you were dancing?

Appendix C: Posture-Gesture

Quotes

Dancer 1, Task 3:

I felt most connected/ drawn to the spinning which involved an elevated chest but also during the low/ floor work when the thighs were engaged and powering the body across the space.

Dancer 1, Task 4:

There was some spinning again – but it felt more habitual than right/ fitting. I wonder if it is the case that in some instances the same type of movement can be habitual and in others, where there is perhaps more or less – like more of the body involved but less controlled thinking that it is liberated from habit.

Dancer 1, Task 6:

Interesting – I didn't feel distracted but it was interesting to see the way she used her body there seemed to be movement that was just short of being full-bodied – I think in terms of momentum there was some full bodied movement but largely it seemed slightly disconnected. I am not sure if flow was achieved again.

Dancer 2, Task 2:

I really liked this – there were many quick quirky movements – I did get distracted sometimes but only when thinking about Laban/Lamb and the posture/gesture merged movement – there was much more of this in this task – little flick resonated throughout the body and merged.

Dancer 2, Task 3:

This task felt more like gestural movement and not much merging.

Dancer 2, Task 4:

This was interesting – watching [Dancer 2] as a Laban analyst the task seemed to take on a whole different meaning there was much more vibrancy and full bodied movement.

Dancer 2, Task 5:

I think there were less dynamic changes and more gestural movements rather than whole body.

Dancer 2, Task 6:

There were moments when I felt connected and in flow myself such as the moments of high speed/ish – it was the little jerky movement where the attention seemed to be directed at one specific point and the moment did resonate though not always to the ends of the body... I'm not sure, I think that short, snappy, full bodied phrases seem to suit [Dancer 2] more, and work to engage me more anyway.

Dancer 2, Task 7:

I think the initial engager was the quick small/big whole body movements.

(Douse, 2013)

Appendix D: DVD

Chapter One: Video files for Task 7

1.1 Dancer 1

Chapter Two: Bournemouth visualization phase 1 for Task 7

2.1 Dancer 1

2.2 Dancer 2

Chapter Three: Bournemouth visualization phase 2 for Task 7

3.1 Dancer 1

3.2 Dancer 2

Chapter Four: Bournemouth visualization phase 3 for Task 7

1.1 Dancer 1

1.2 Dancer 2

Chapter Five: EVaRT visualization for Task 7

5.1 Dancer 1

5.2 Dancer 2

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